CAUTIONS

1、Please read this service manual carefully and make sure all elements of anti-static are in place before the repair work is carried out.

2、Servicing and alignment **MUST** be undertaken by qualified personnel only.

3、Please use specified tools and equipments for servicing, in which the parameters need to be calibrated with specified criteria.

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A&B of PCBA Layout……13

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Chapter 1 Specification

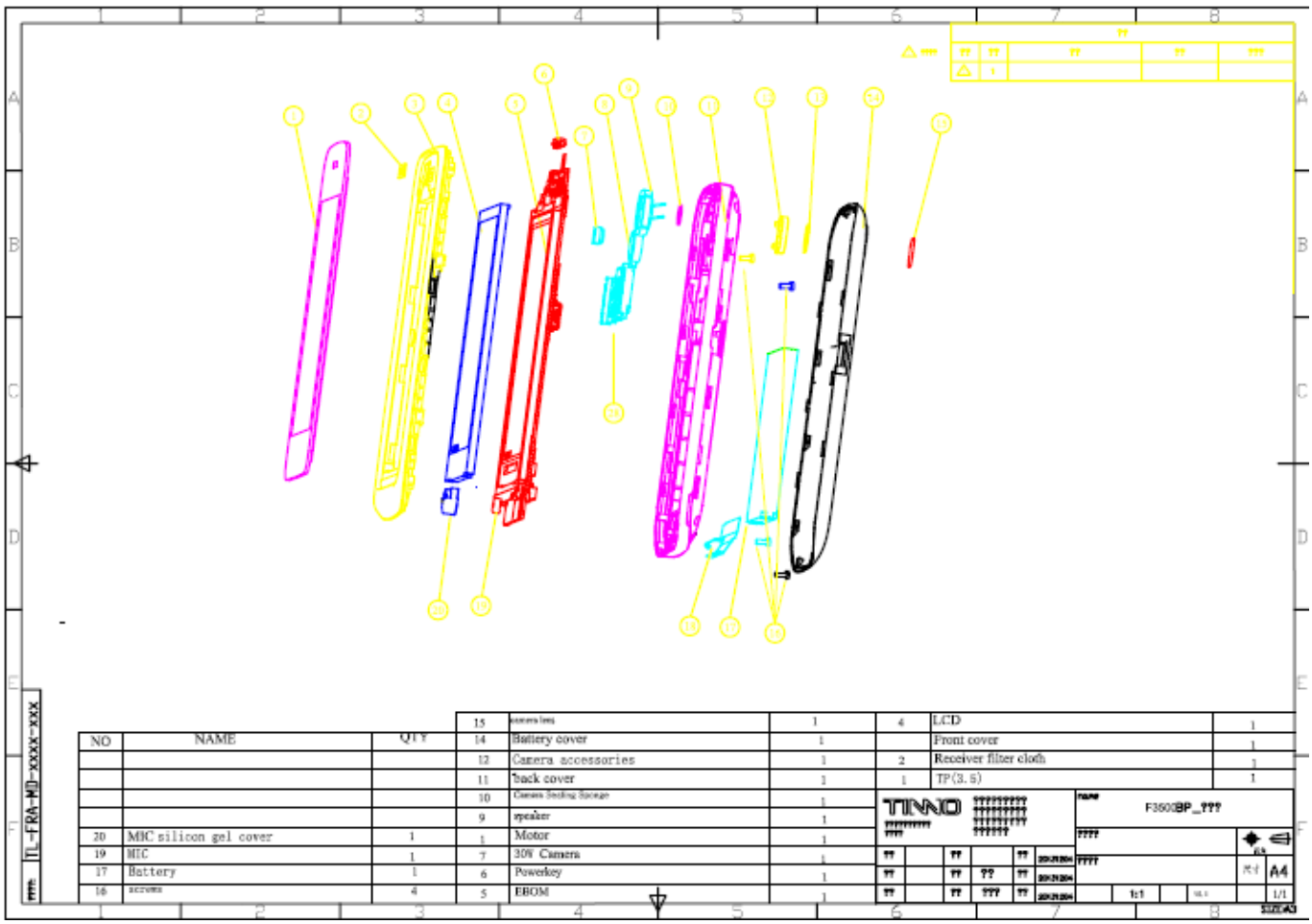
Features & Functions

- Dual SIM Dual Standby Single working
- Full touch
- FM
- Multi-Media application
- 0.3MP with sw upgarde to 1.3MP
- T-Flash（Support 8G T Card）
- 3.5“ HVGA 320*480
- MP3、MP4、AVI 、3GP
- USB1.1，Mini USB

Specification :

Network: 850/900/1800/1900MHz
Display: 3.5“ HVGA 320*480
Camera: VGA(1.3M by Software)
BT: 3.0
Memory: 64M+128M
Lithium Battery: Standard (1050mAh)
USB Data cable: USB 1.1

Chapter 2 Exploded View



NO	NAME	QTY
20	MIC silicon gel cover	1
19	MIC	1
17	Battery	1
16	screws	4
15	camera lens	1
14	Battery cover	1
12	Camera accessories	1
11	Back cover	1
10	Camera Sealing Sponge	1
9	speaker	1
1	Motor	1
7	30W Camera	1
6	Powerkey	1
5	EBOM	1
4	LCD	1
	Front cover	1
2	Receiver filter cloth	1
1	TP(3.5)	1

Chapter 3 Tools

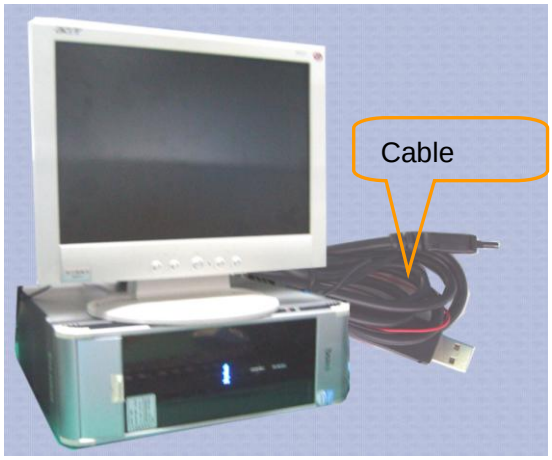
Solder iron

Hot Air Gun

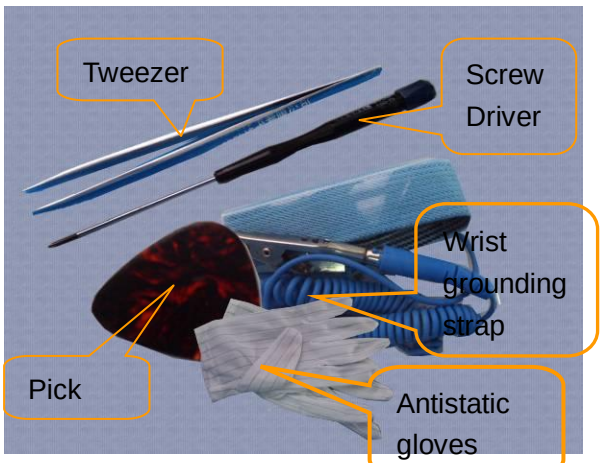
Power Supply

Multimeter

Solder wire, Flux



PC, Download cable



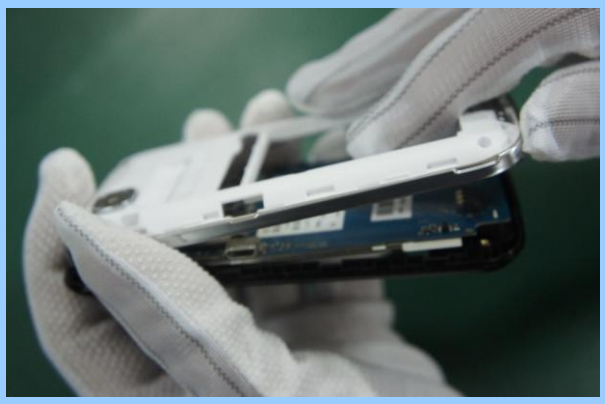
Others

Chapter 4 Disassembly & Assembly

1. Disassembly Process

1. Remove the battery cover

2. Unfasten the 4 screws by screw driver



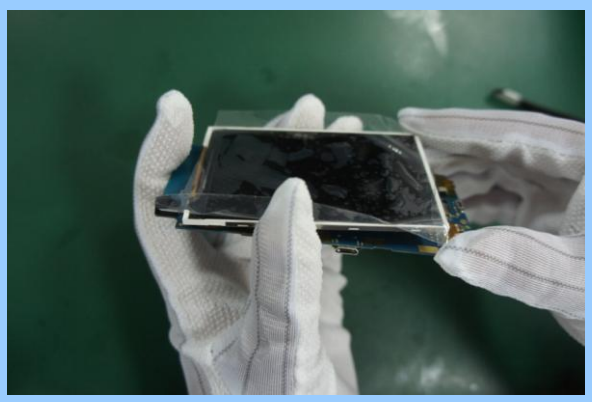
3. Prize up the back cover

4. Unfasten the 2 screws by screw driver.

5. Remove the TP connector.

6. Stick protection film for front cover.

7. Remove the TP

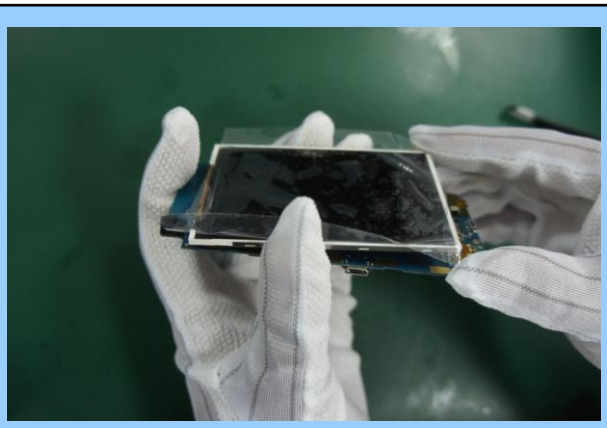


8. Remove the LCD by electric soldering iron

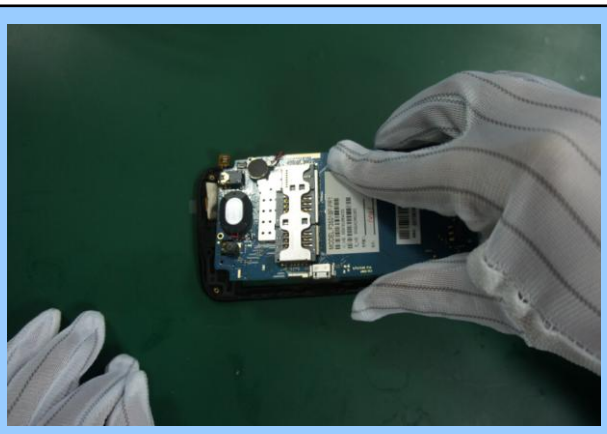
Finished.

2. Assembly Process

1. Install the TP



2. Install the LCD by electric soldering iron



3. Install the PCBA.

4. Fasten the 2 screws..

5. Install the back cover.

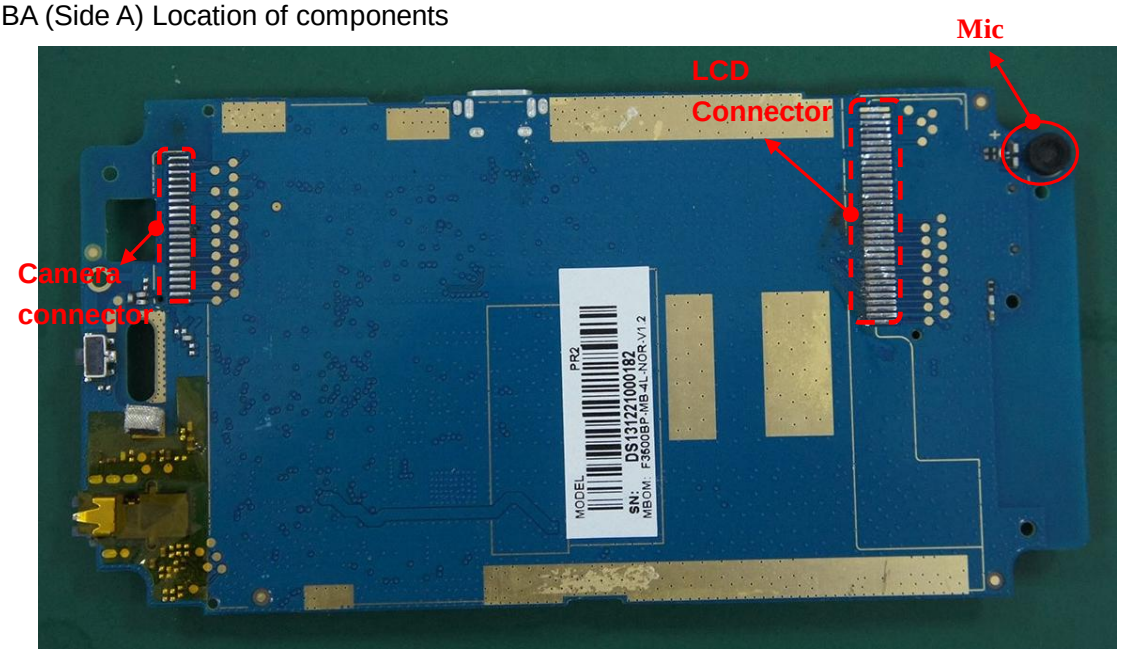
6. Fasten the 4 screws..

Finished.

Chapter 5 Picture of PCBA

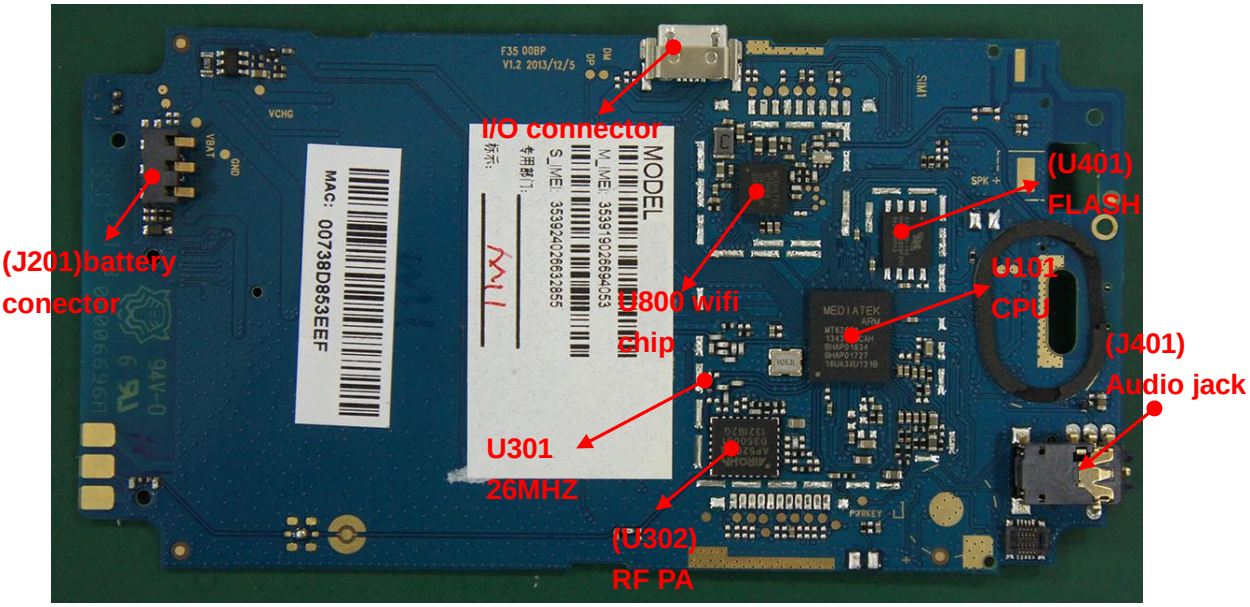
5.1 Side A

PCBA (Side A) Location of components

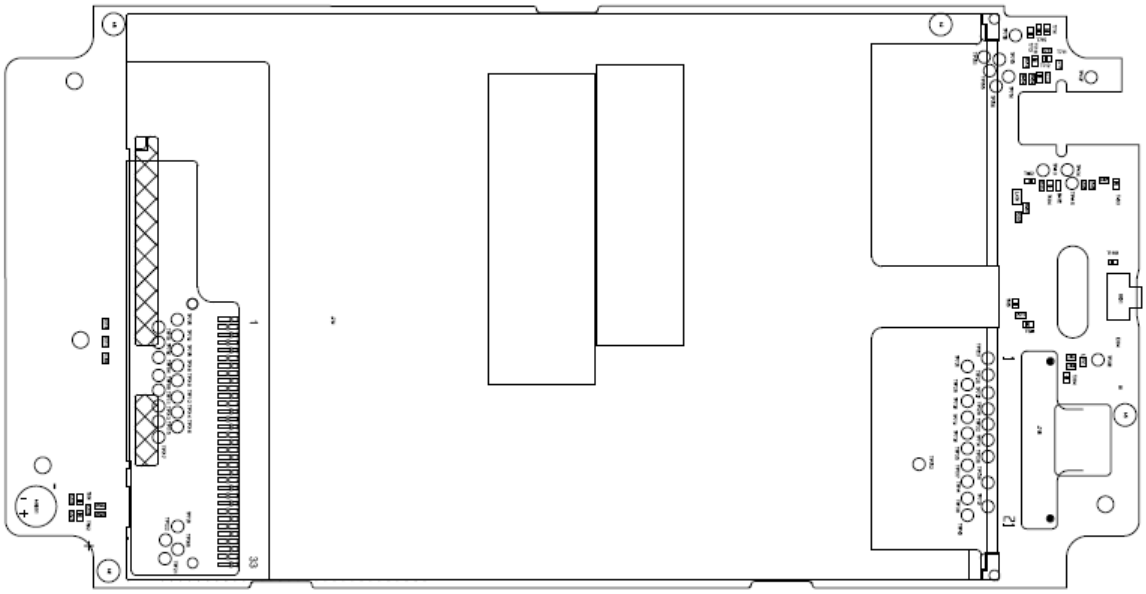


5.2 Side B

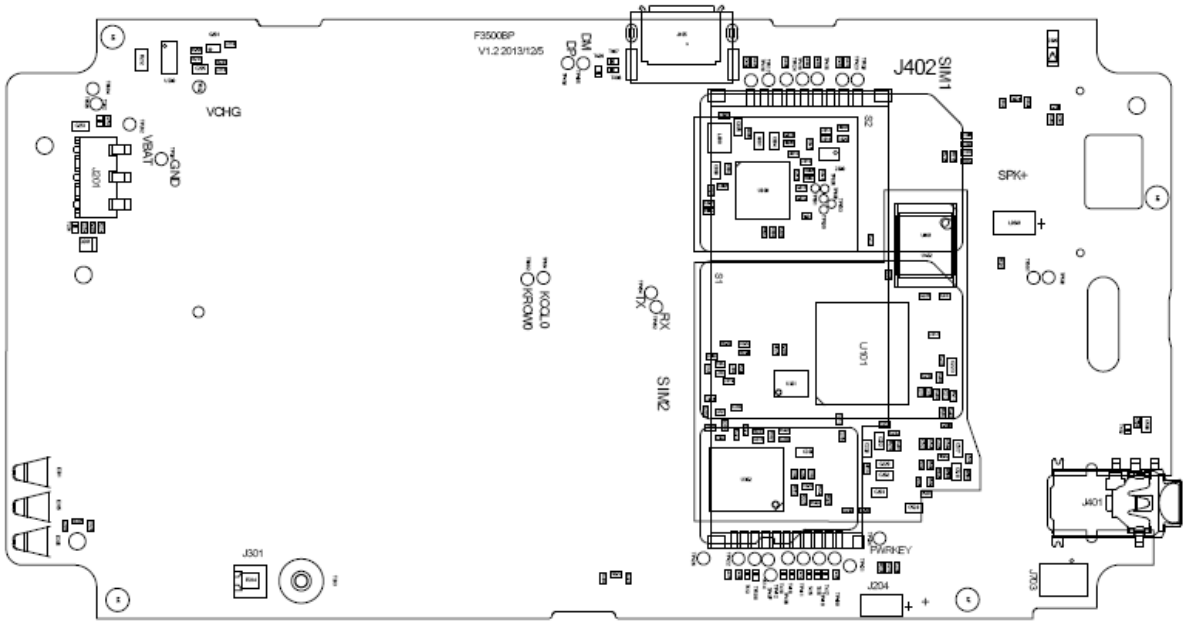
PCBA (Side B) Location of Components



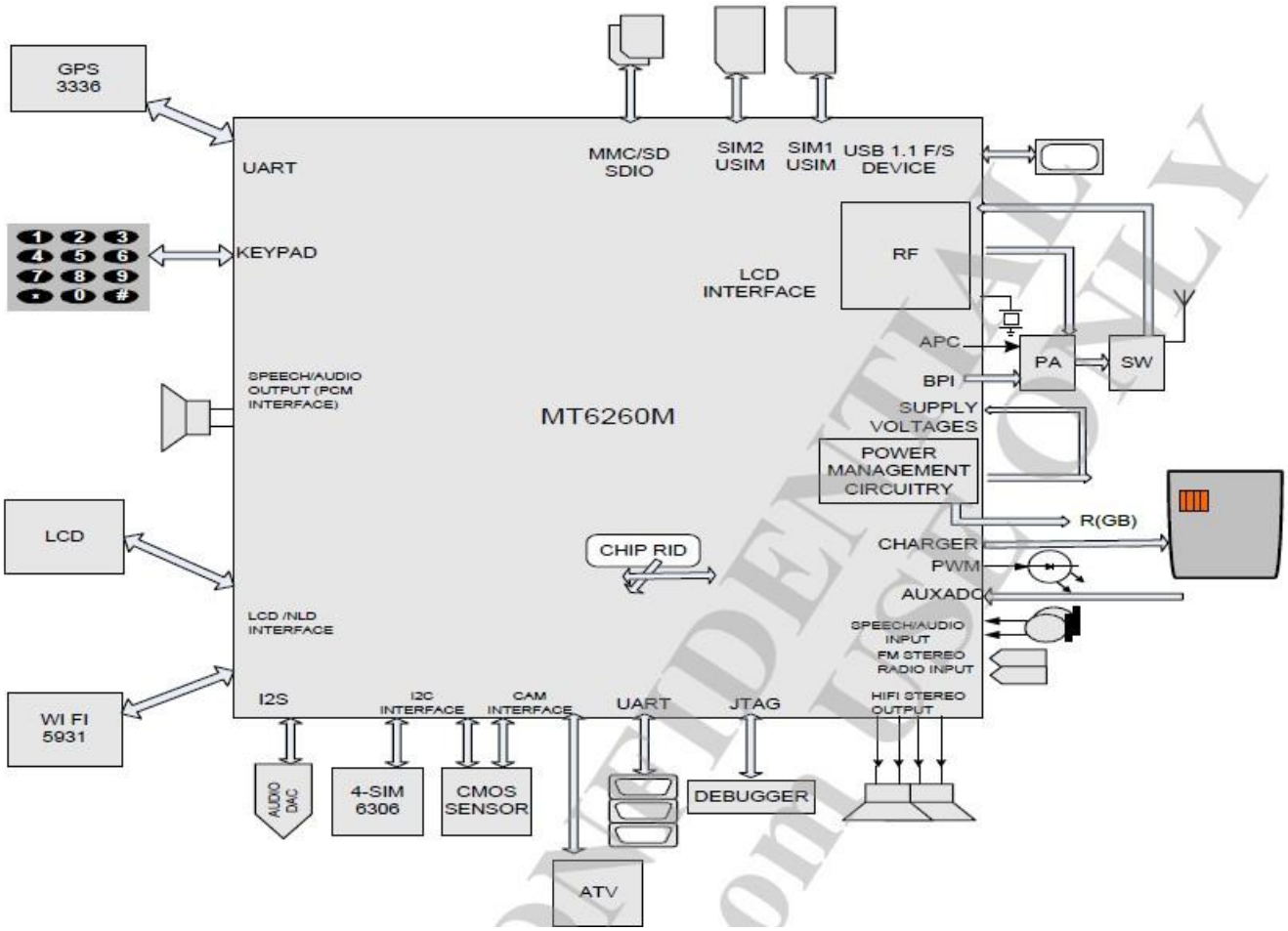
5.3 PCBA Layout side A



5.4 PCB Layout Side B

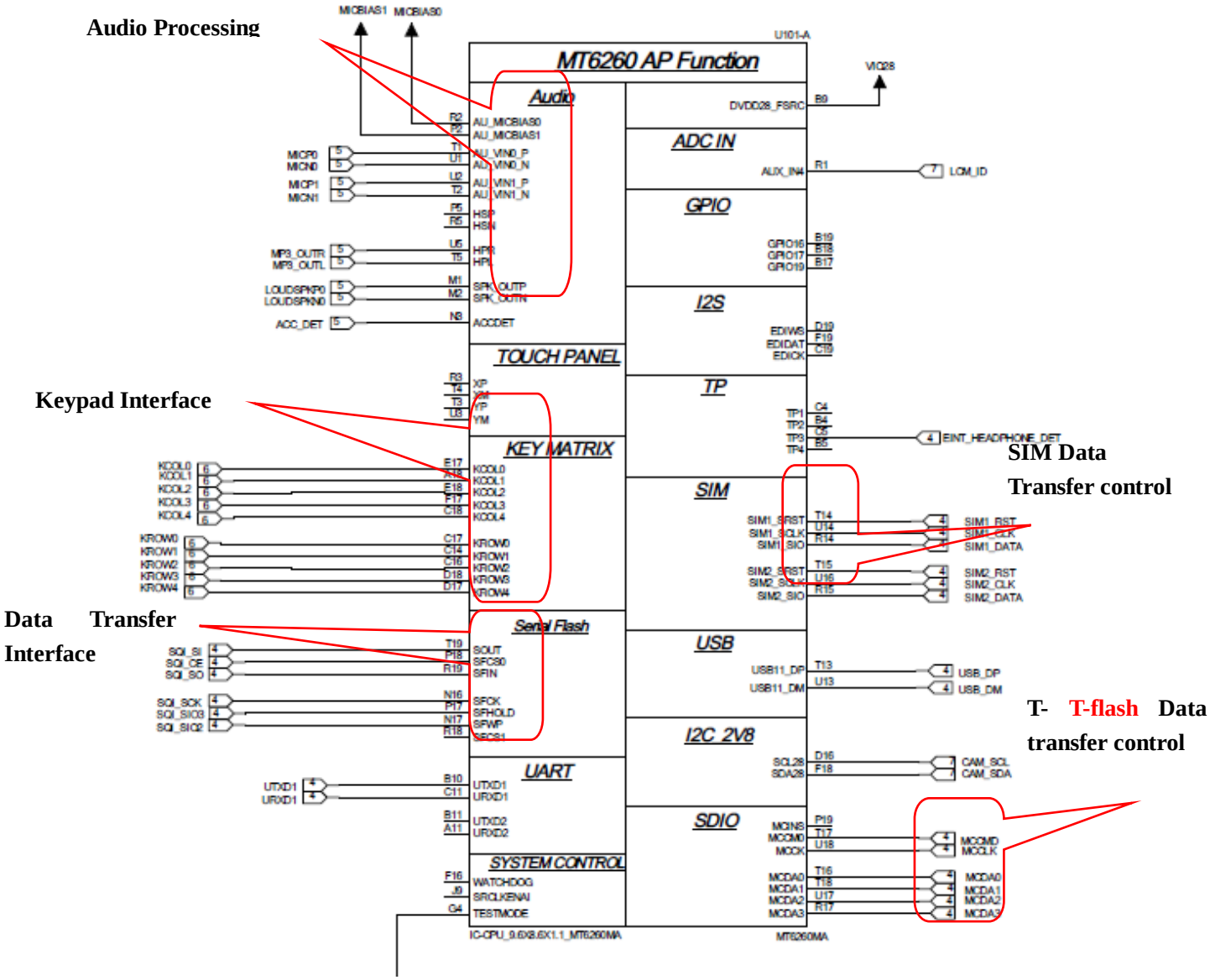


Chapter 6 System Block Chart

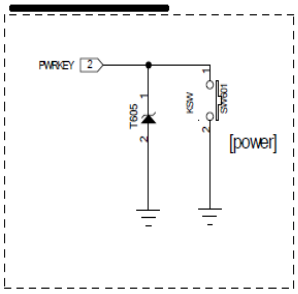


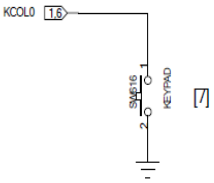
CONFIDENTIAL
For Internal Use Only

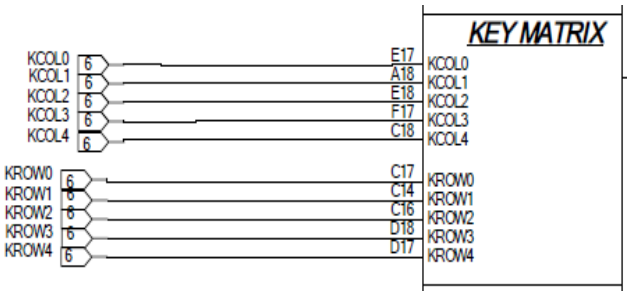
Chapter 7 Circuit diagram for each unit



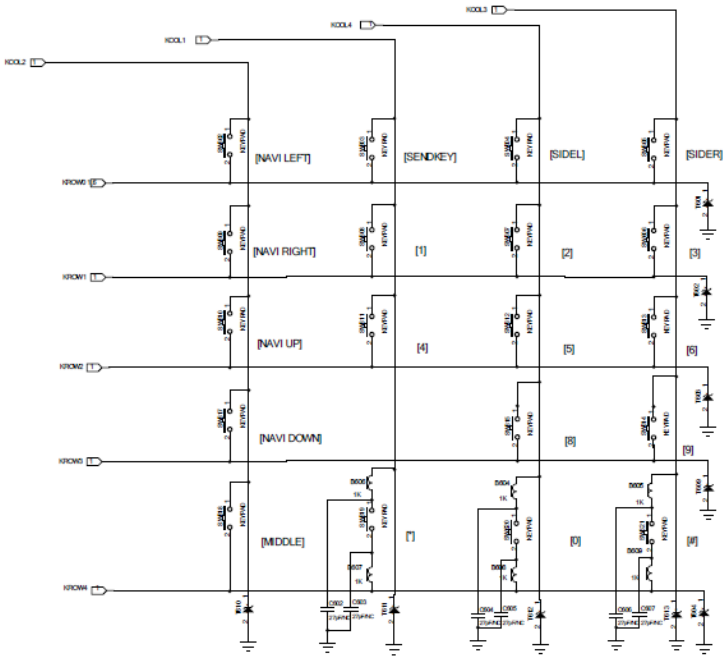
PWR KEY



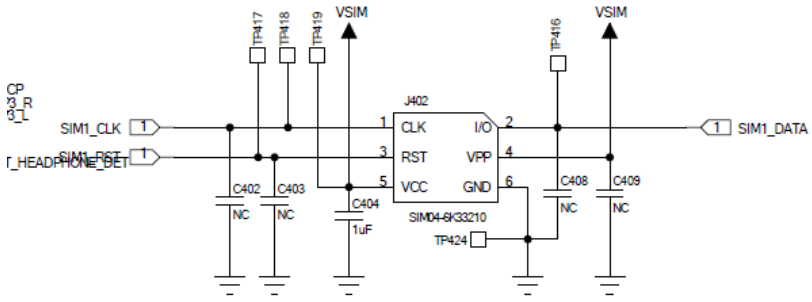


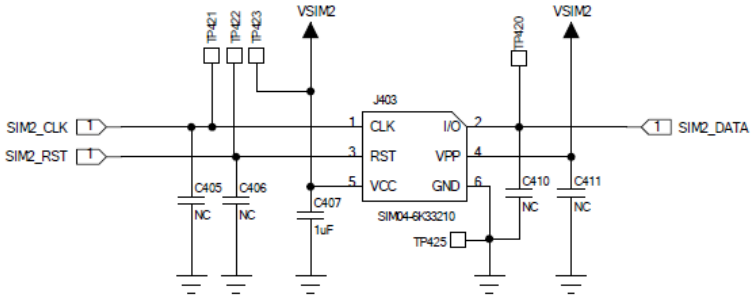


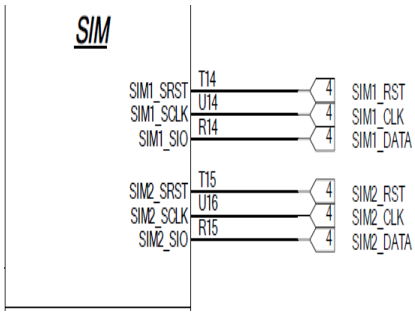
KEYPAD



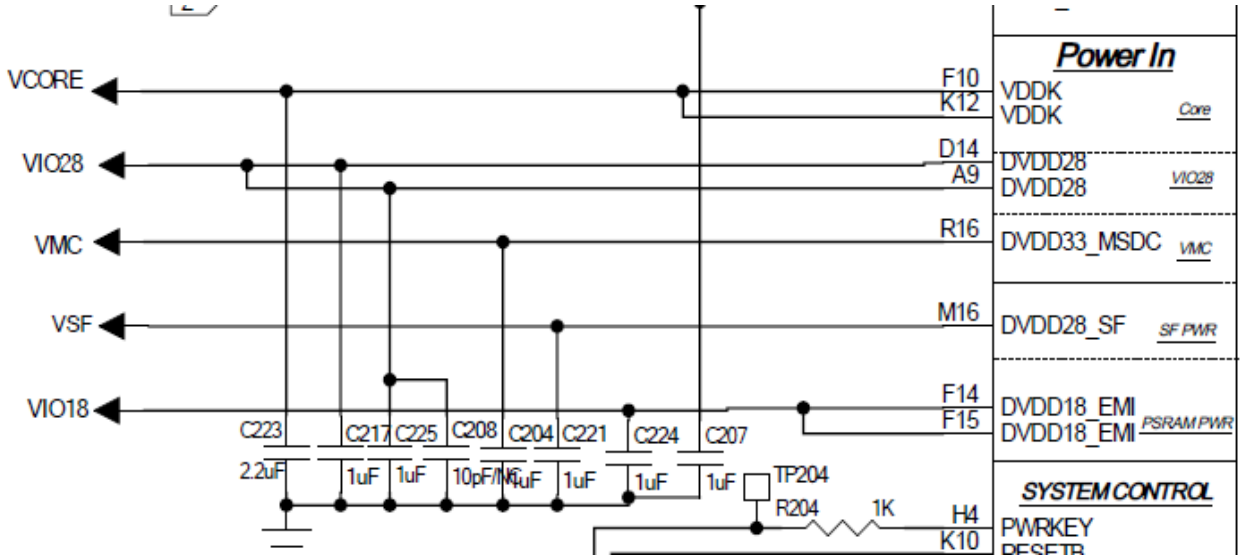
Output of SIM Card



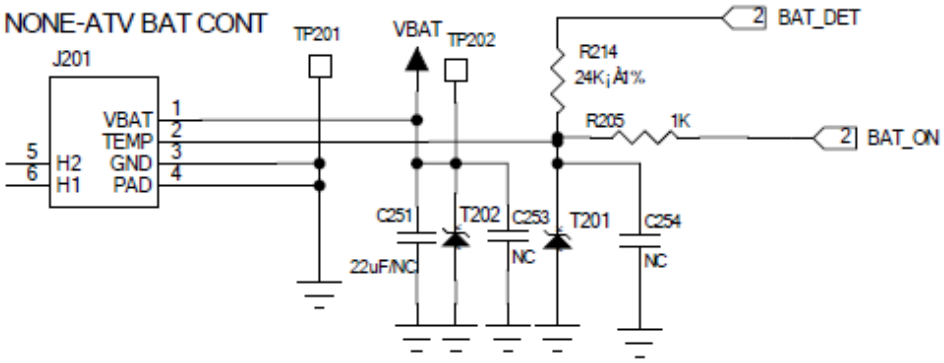




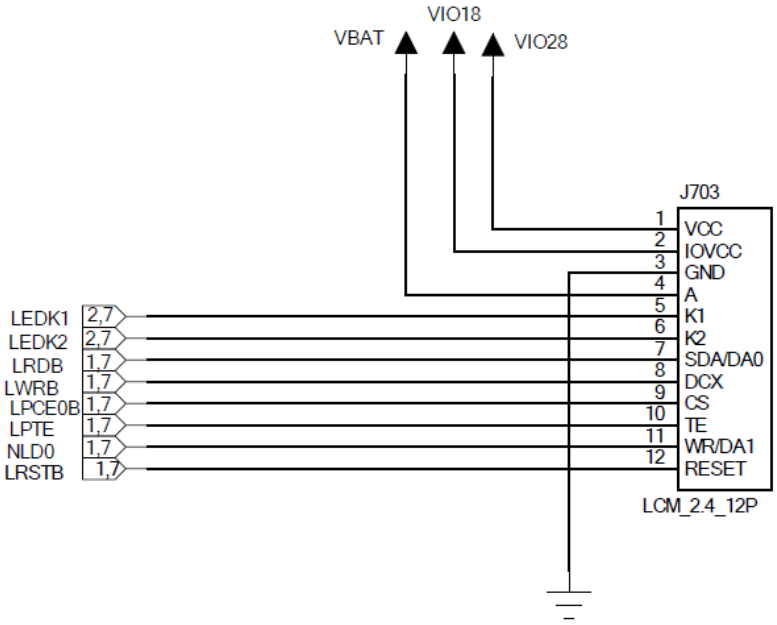
CPU POWER SUPPLY OUTPUT PORT



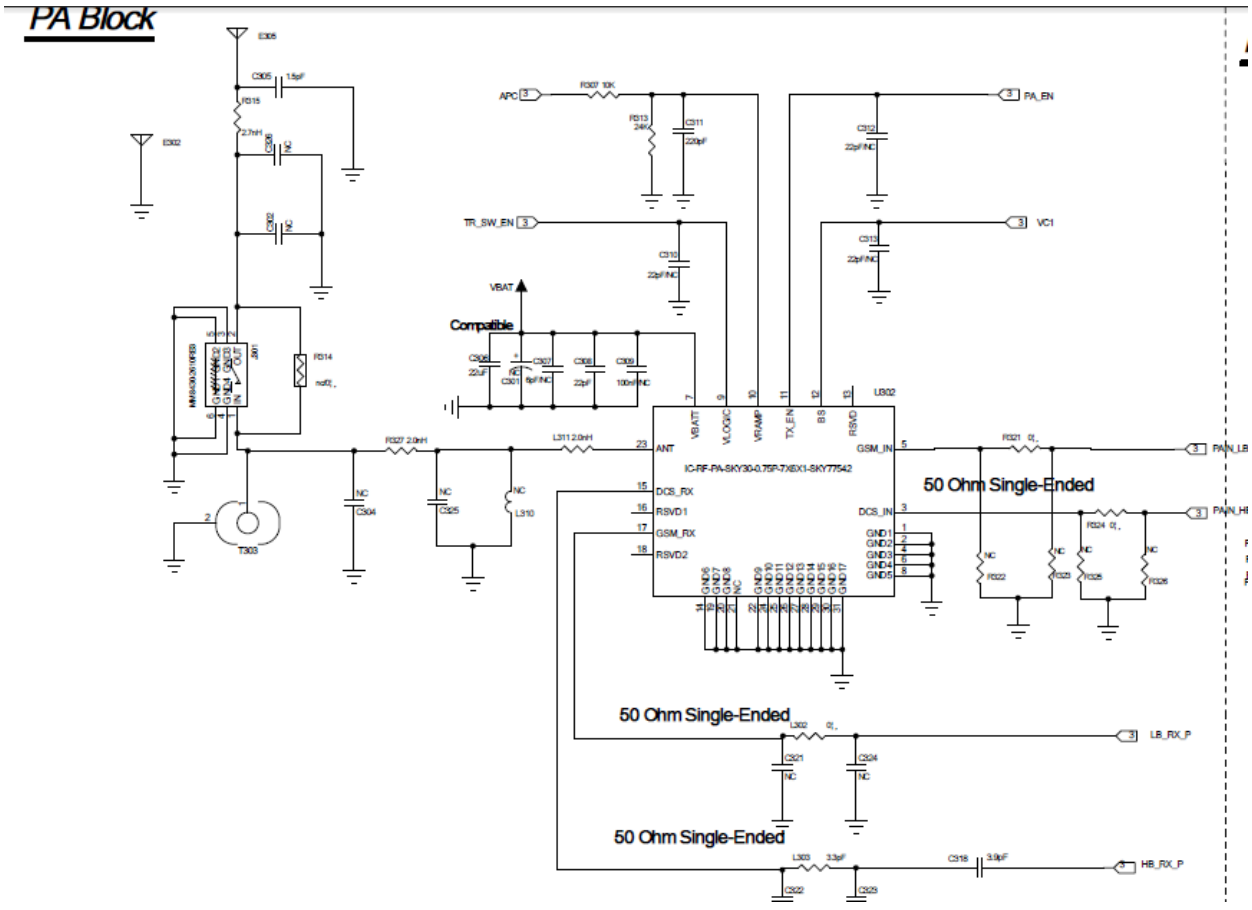
Battery Connector



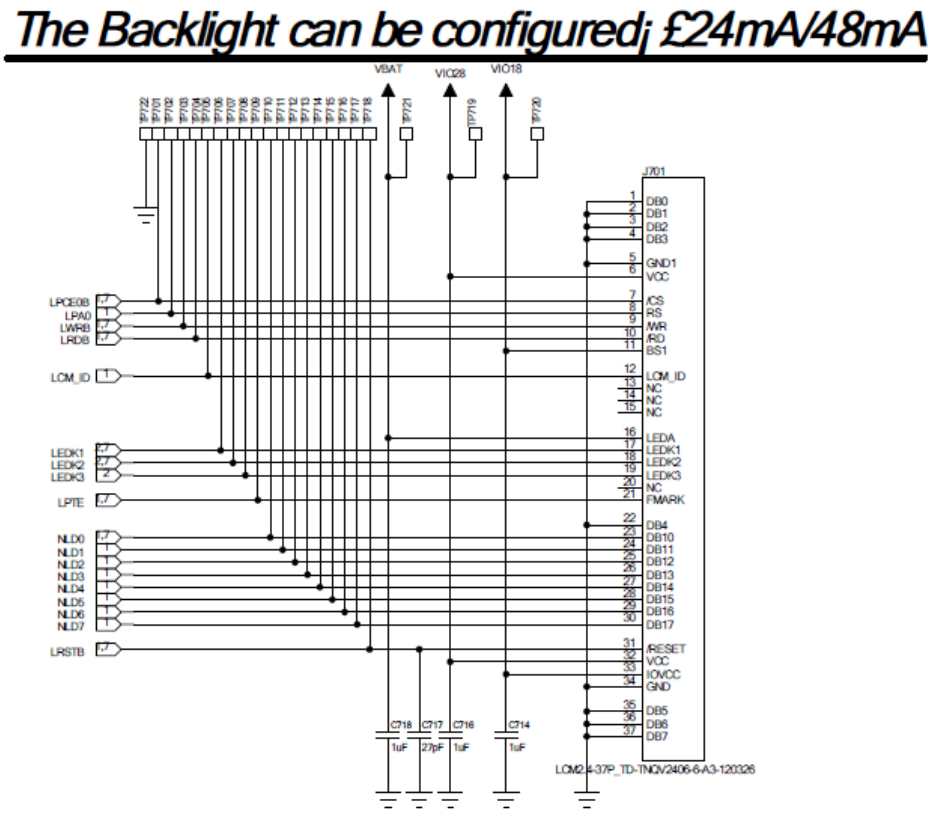
I/O Interface (5PIN)



PA

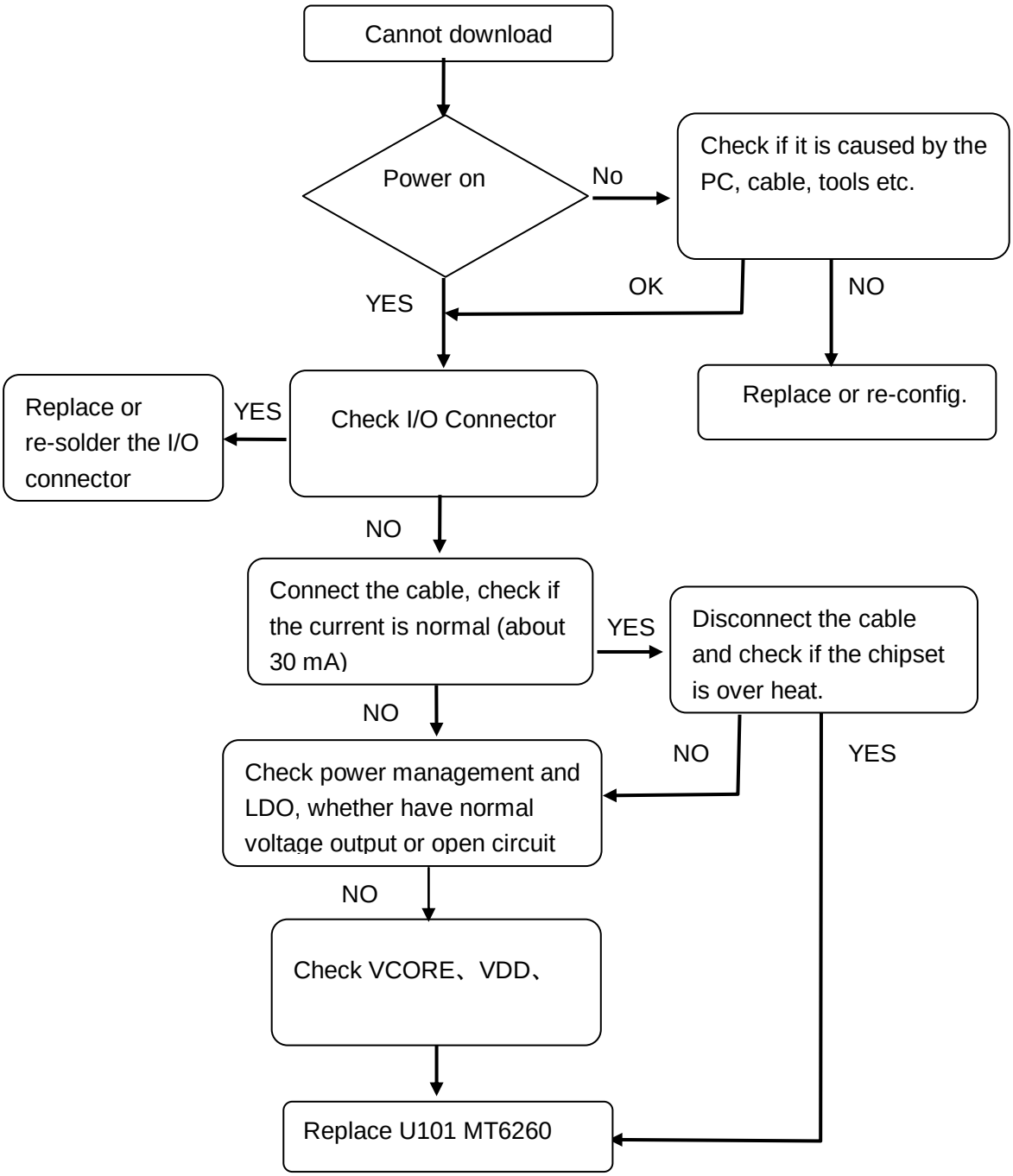


Display interface

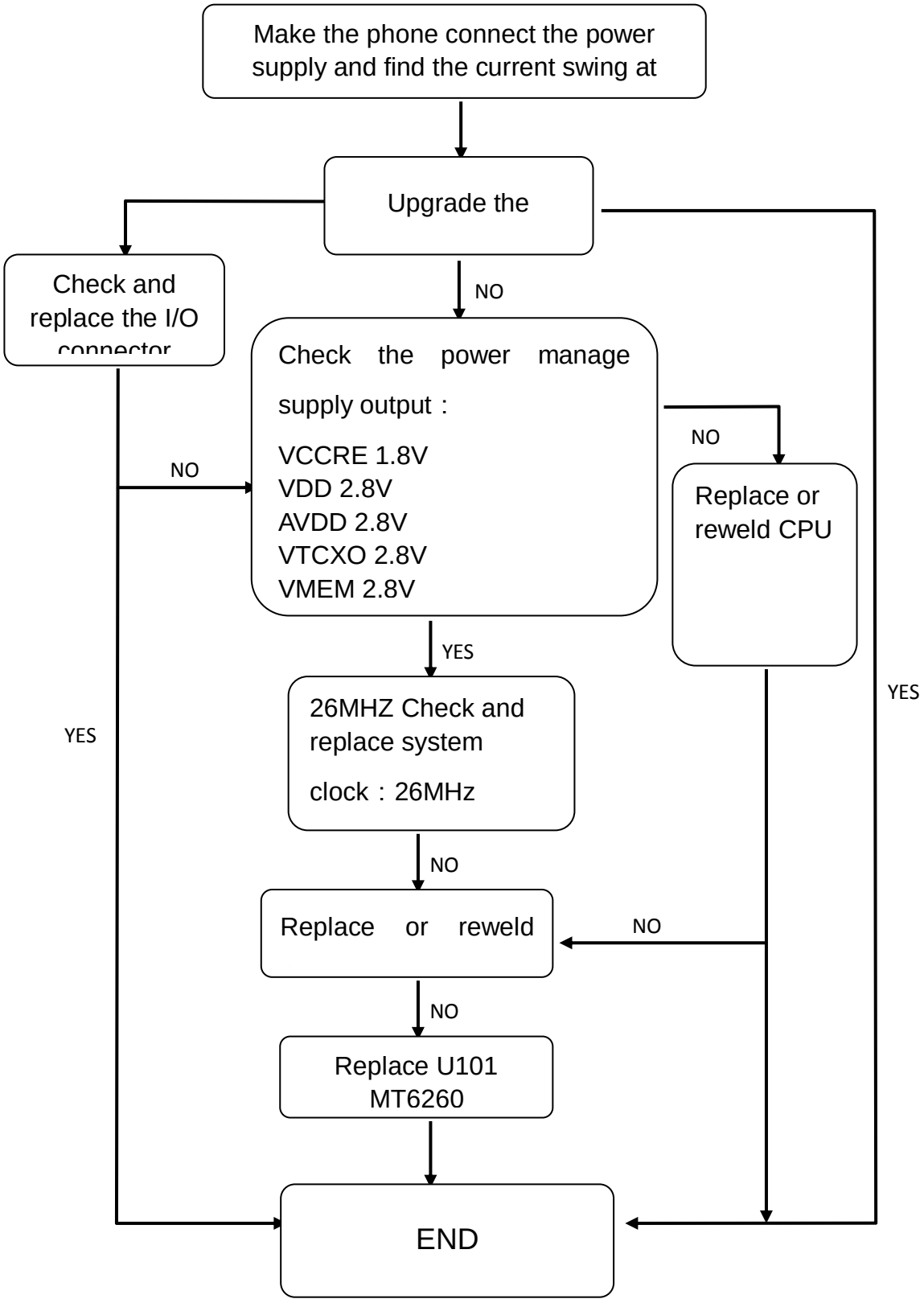


Chapter 8 Trouble shooting guide

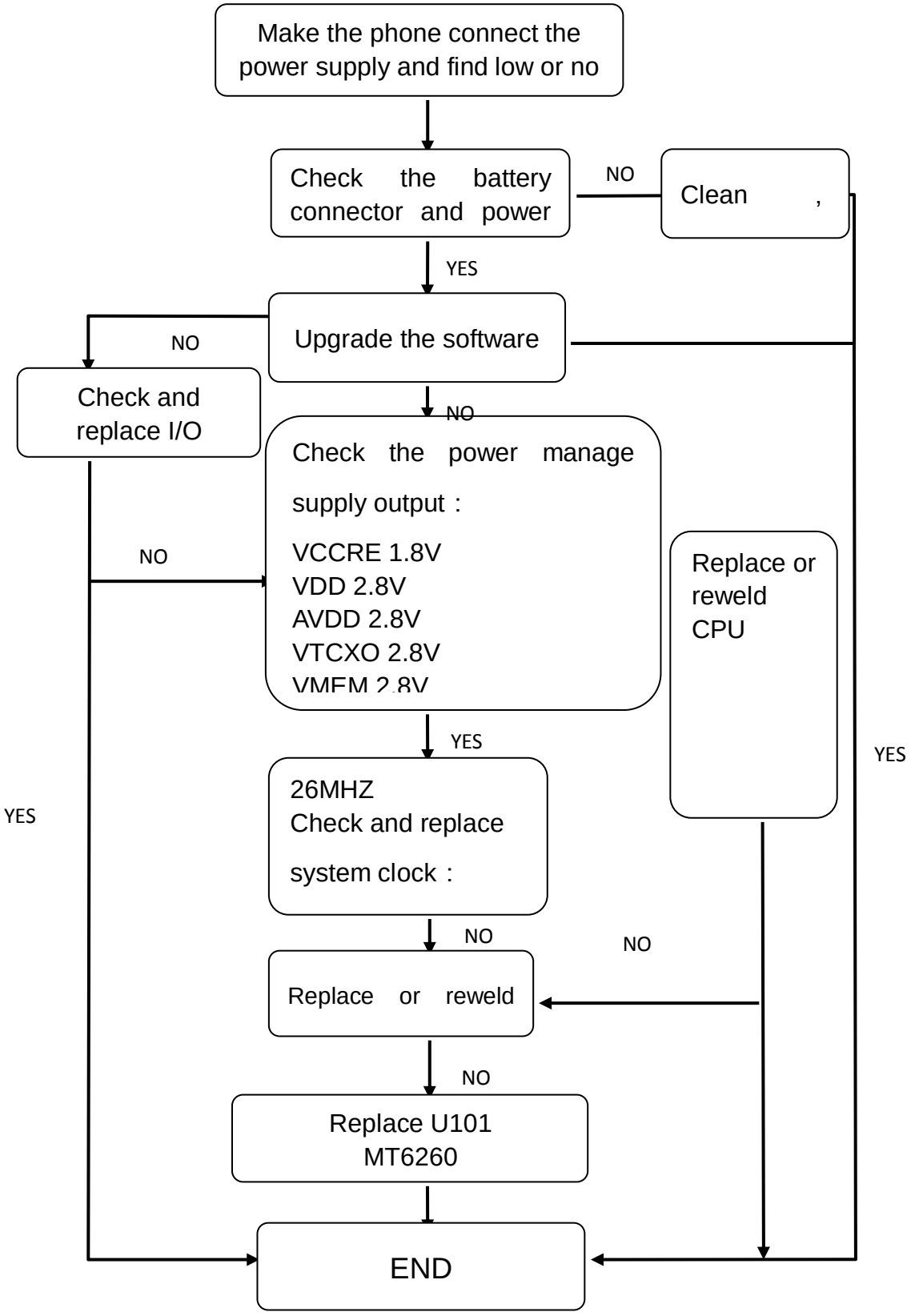
Can't Download



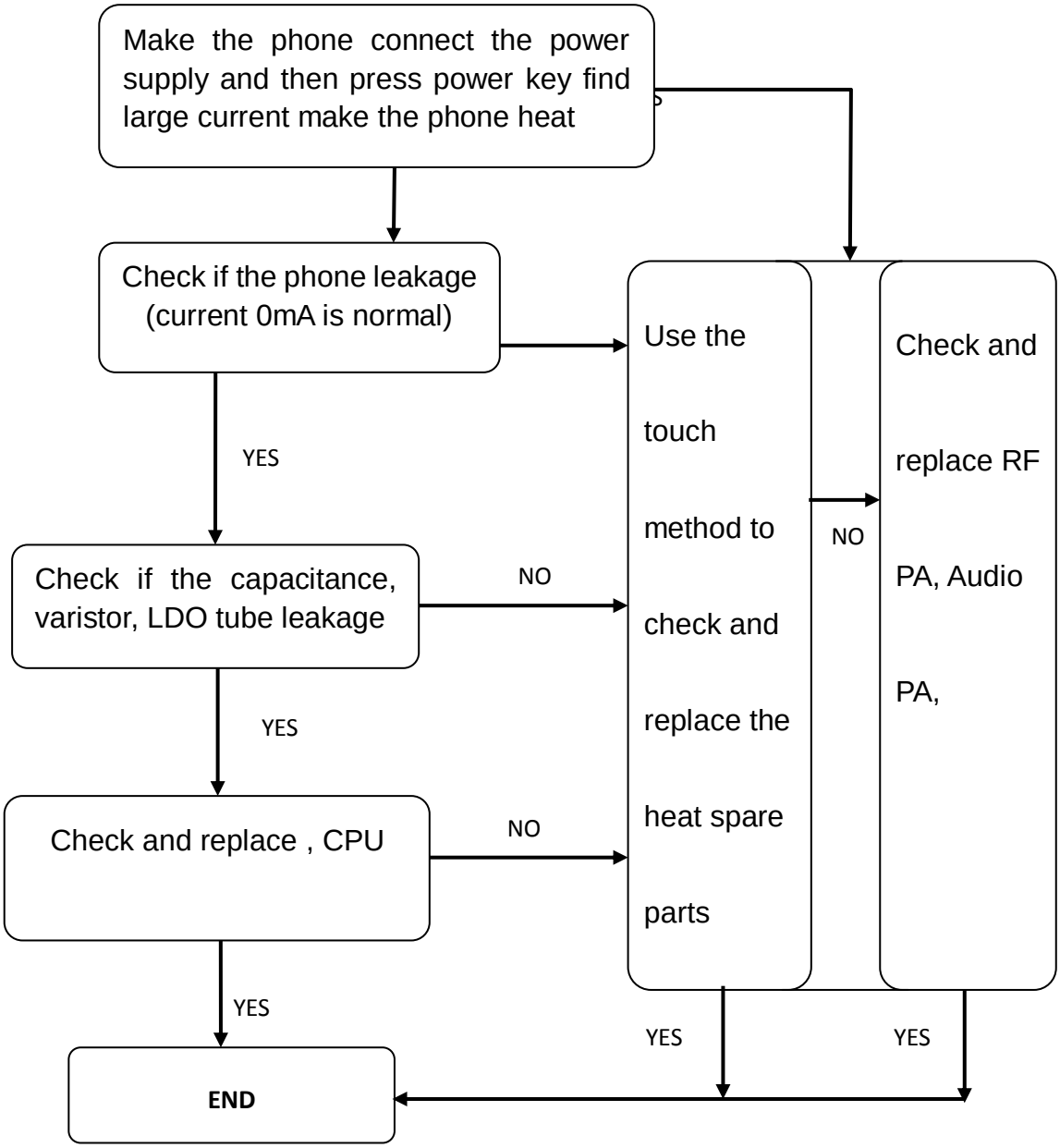
Cannot power on-current swing instability



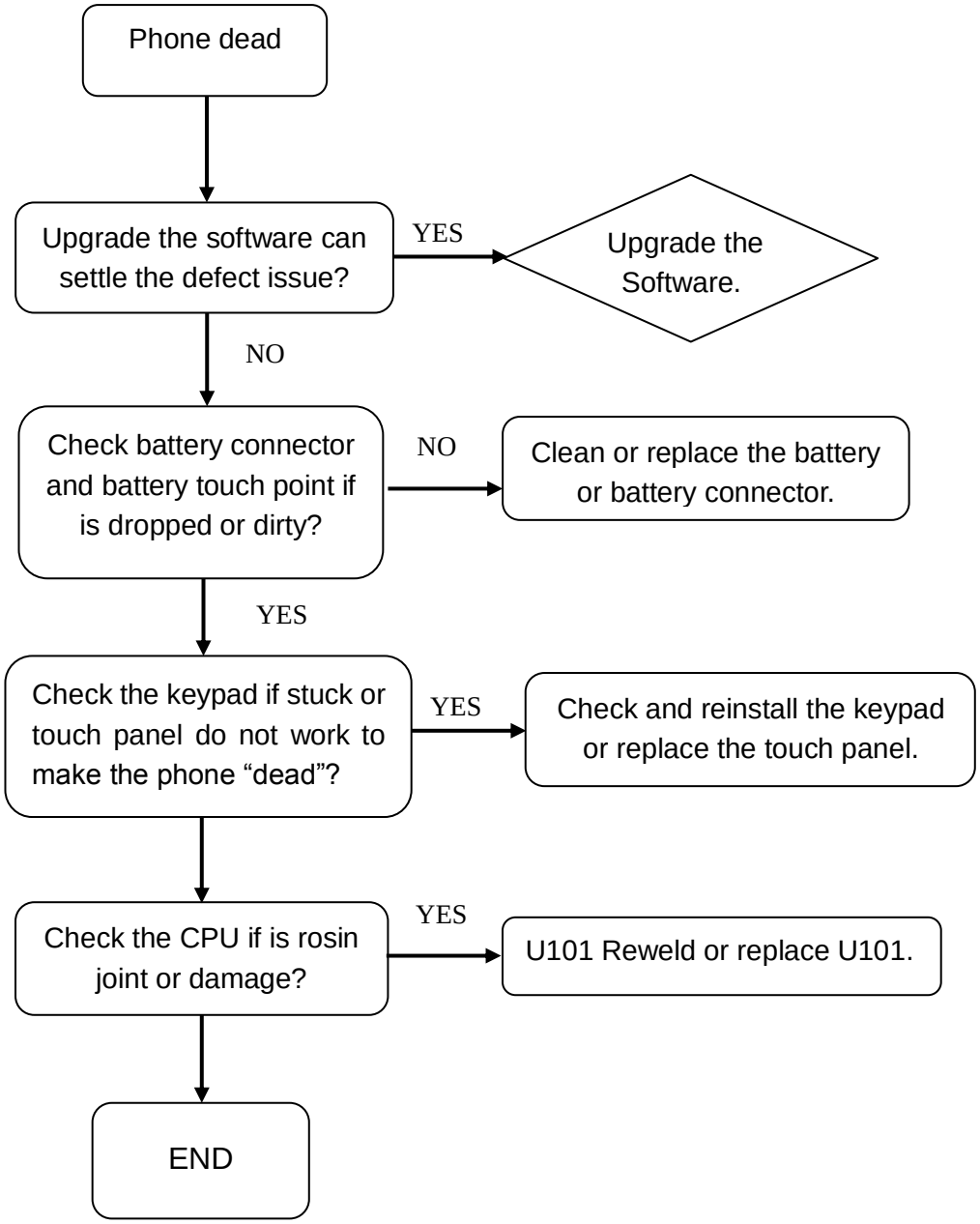
Cannot power on-low or no current



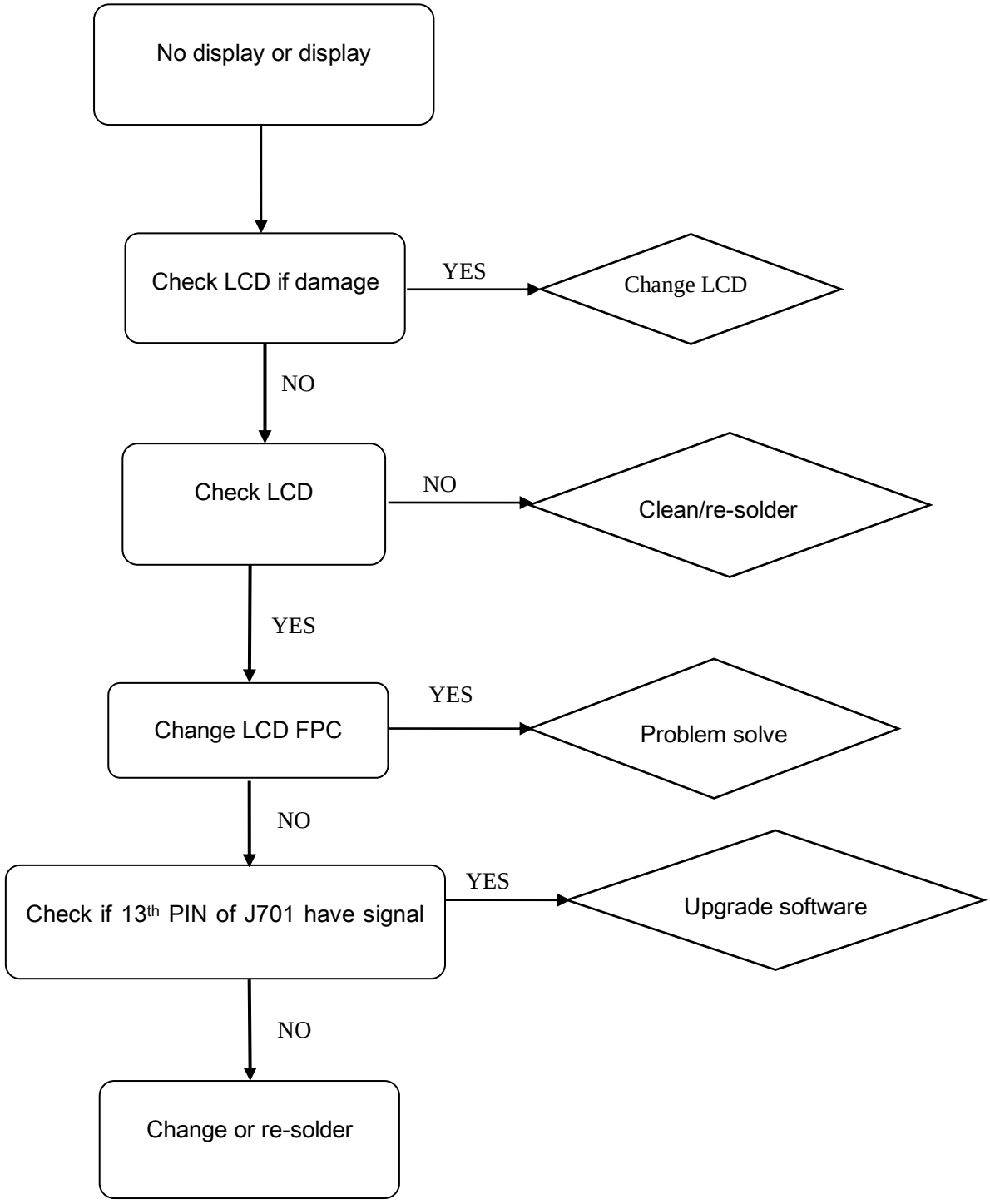
Cannot Power on-large current


Make the phone connect the power supply and then press power key find large current make the phone heat
Check if the phone leakage (current 0mA is normal)
YES
Check if the capacitance, varistor, LDO tube leakage
NO
YES
Check and replace , CPU
NO
YES
END
Use the touch method to check and replace the heat spare parts
NO
Check and replace RF PA, Audio PA,
YES
YES

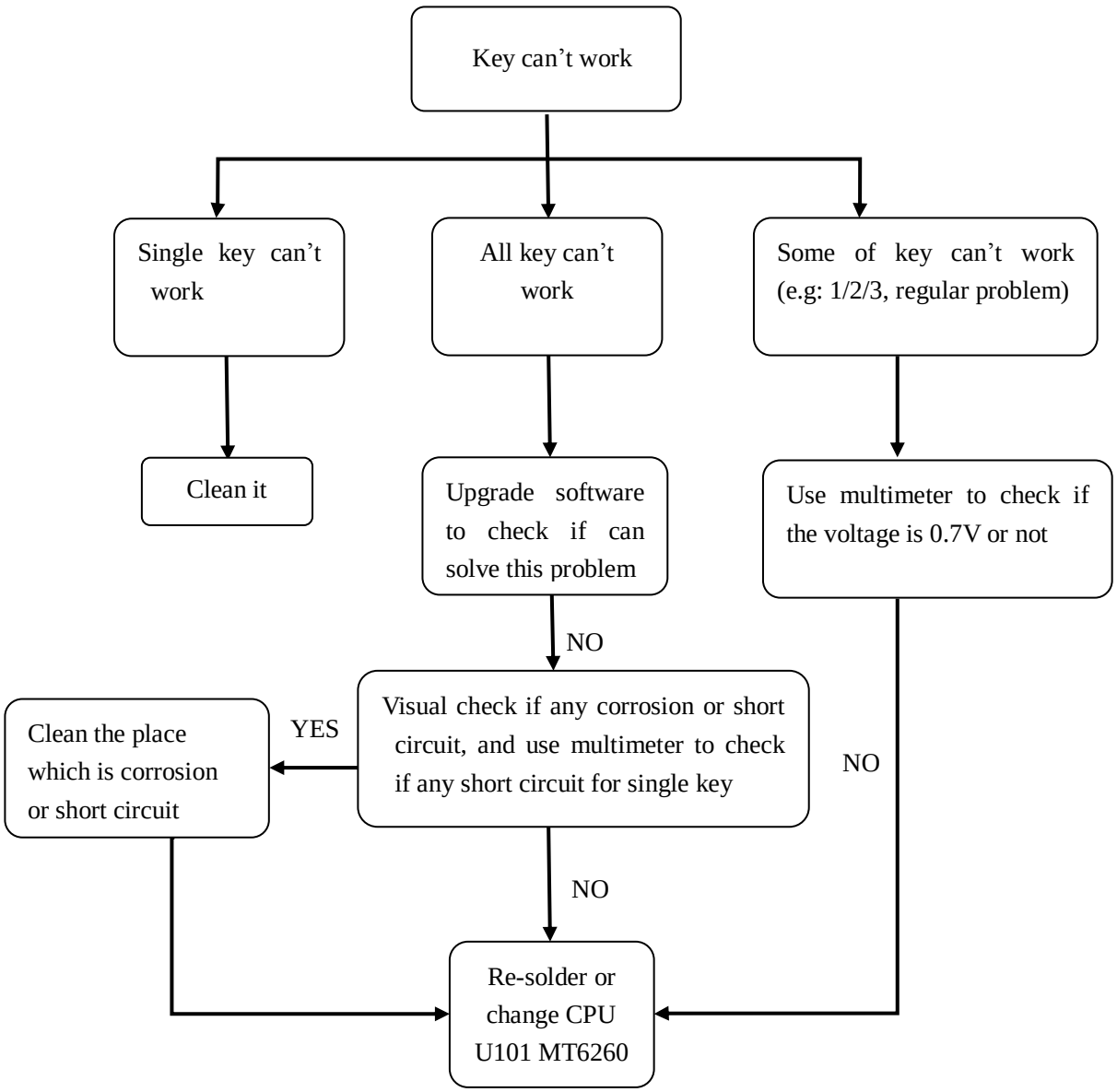
Repair flow for phone dead


Phone dead
Upgrade the software can settle the defect issue?
YES
Upgrade the Software.
NO
Check battery connector and battery touch point if is dropped or dirty?
NO
Clean or replace the battery or battery connector.
YES
Check the keypad if stuck or touch panel do not work to make the phone “dead”?
YES
Check and reinstall the keypad or replace the touch panel.
Check the CPU if is rosin joint or damage?
YES
U101 Reweld or replace U101.
END

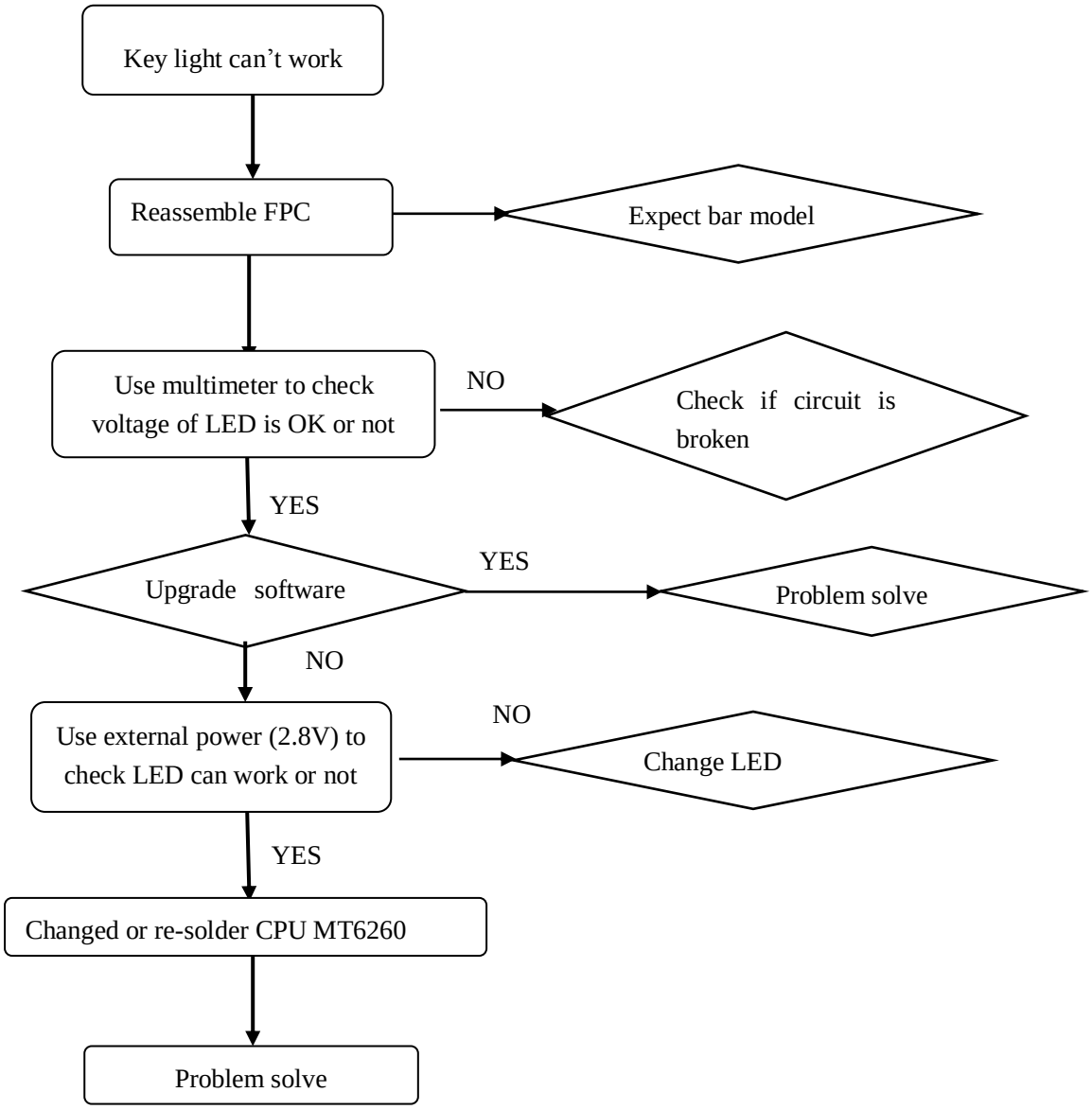
No display or display abnormality



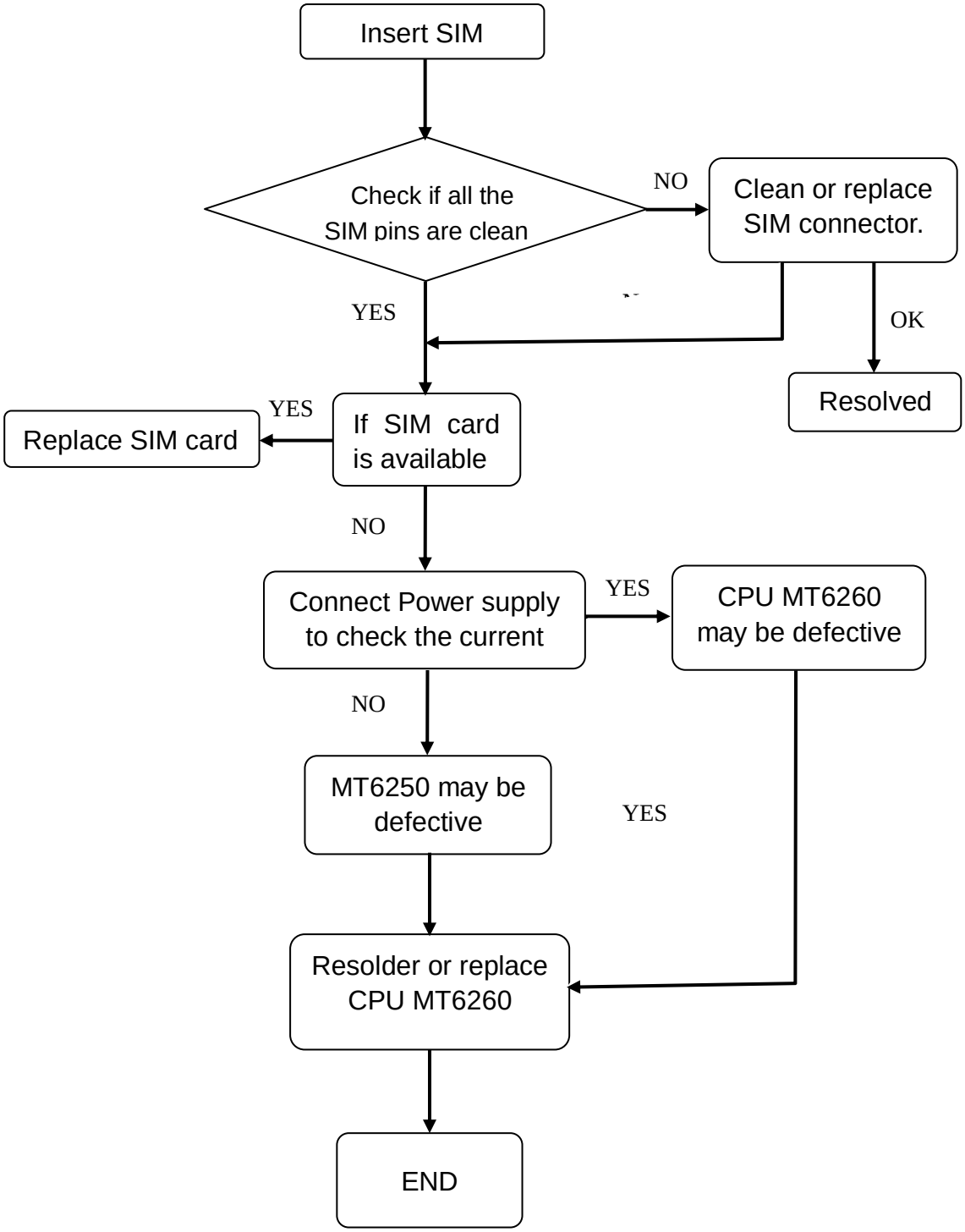
Test process for Key can't work


Key can't work
Single key can't work
All key can't work
Some of key can't work (e.g: 1/2/3, regular problem)
Clean it
Upgrade software to check if can solve this problem
Use multimeter to check if the voltage is 0.7V or not
NO
Clean the place which is corrosion or short circuit
YES
Visual check if any corrosion or short circuit, and use multimeter to check if any short circuit for single key
NO
NO
Re-solder or change CPU U101 MT6260

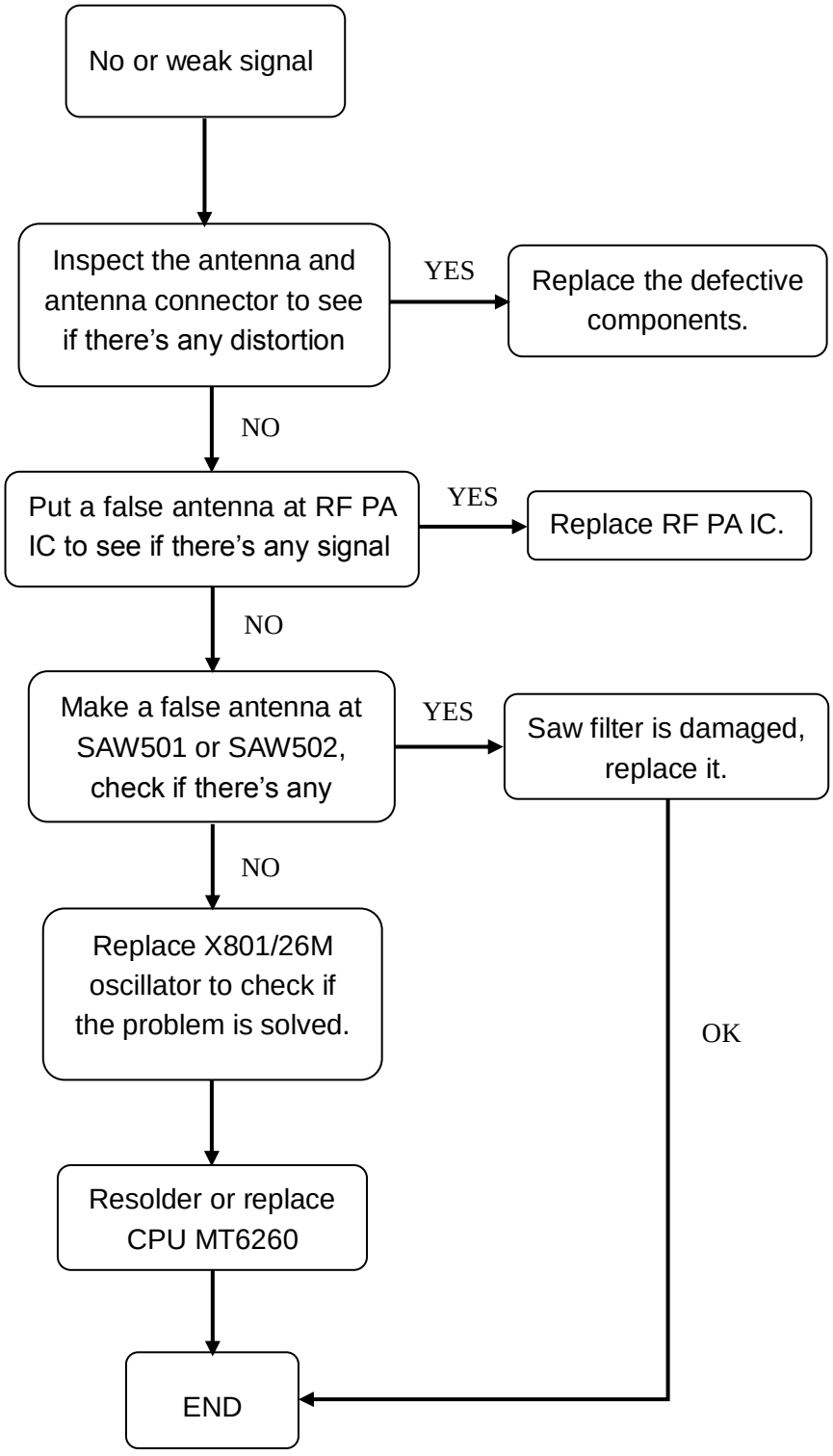
Key light can’t work



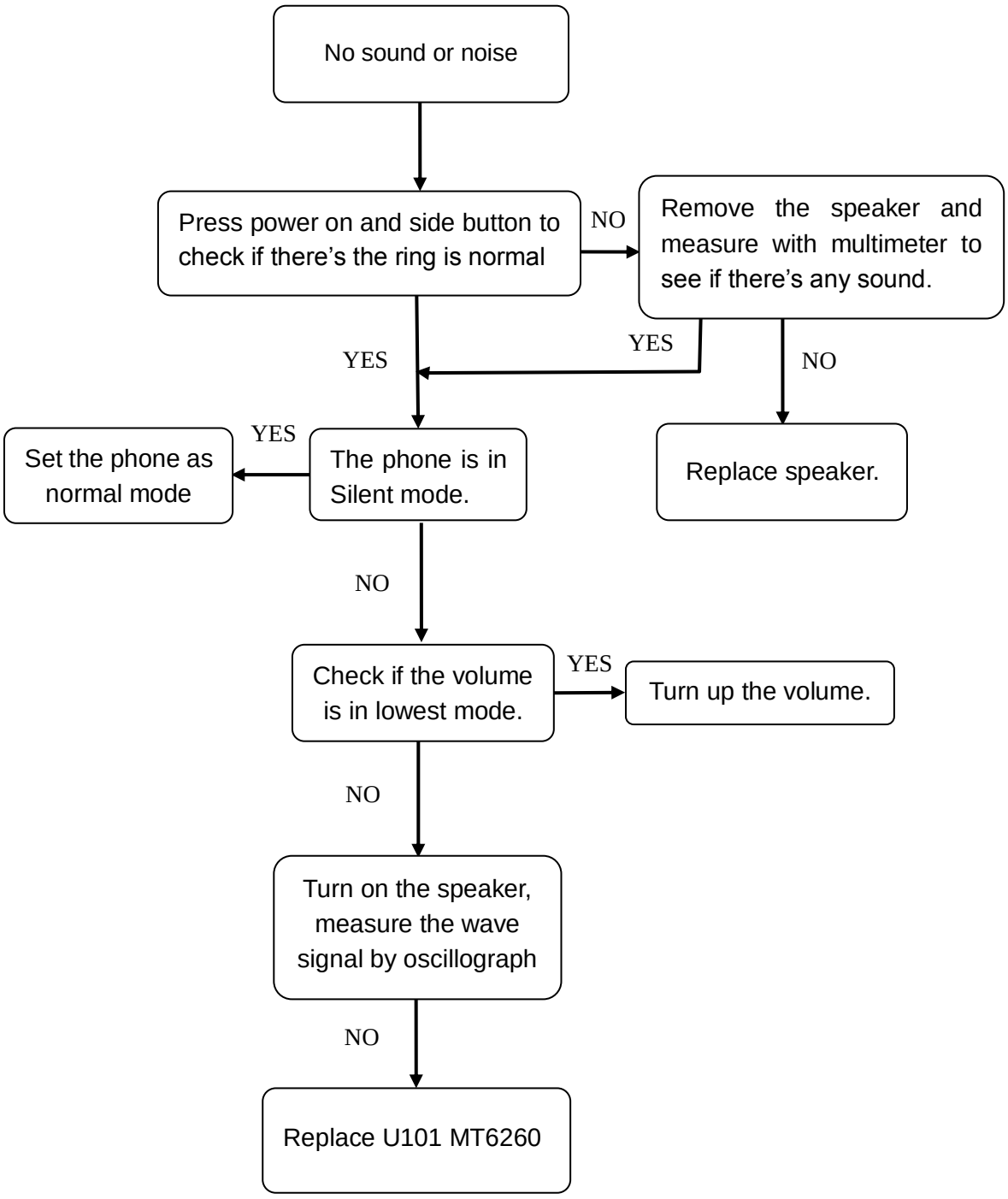
Insert SIM Repair Process



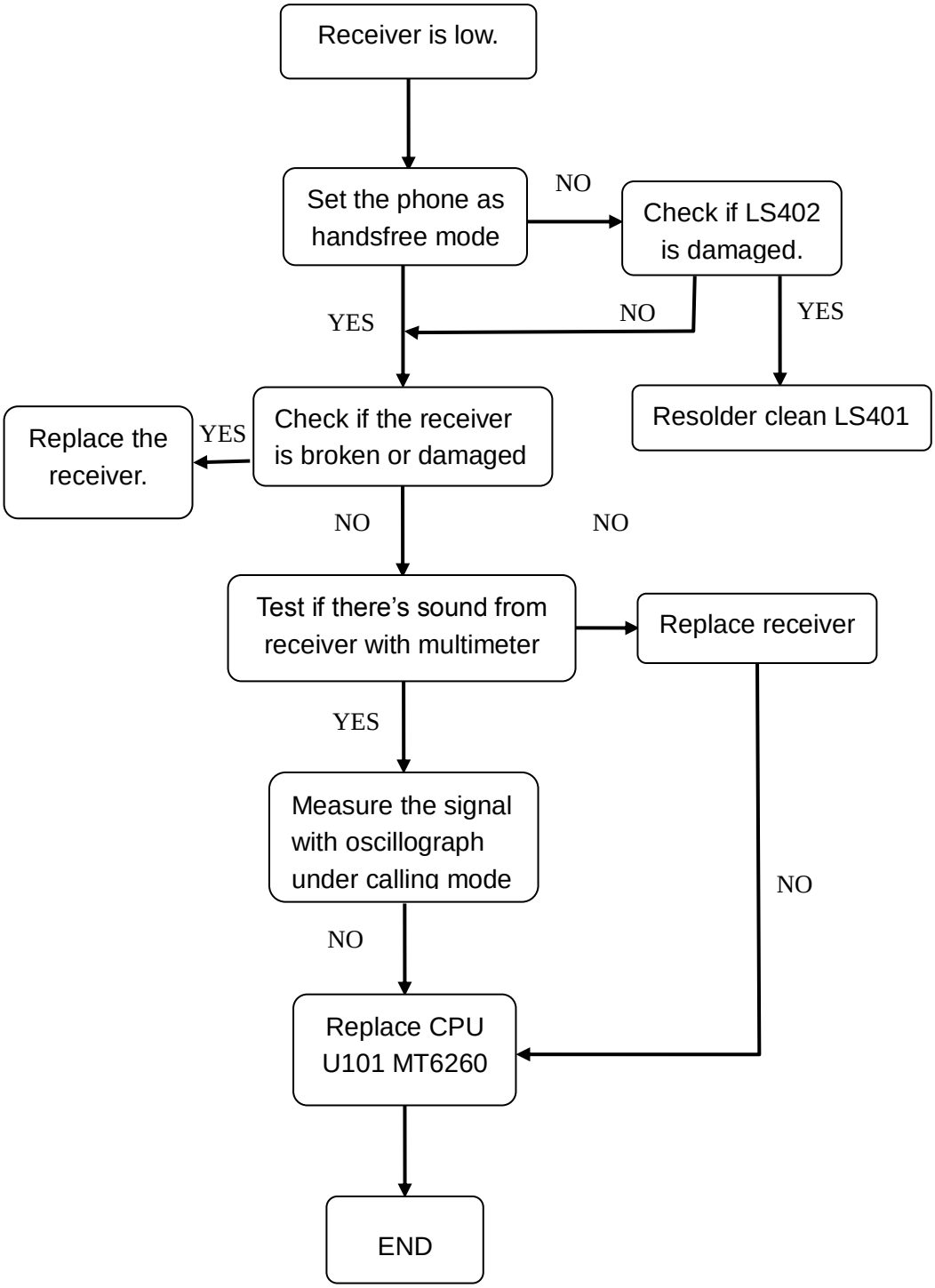
N0/weak signal trouble shooing


No or weak signal
Inspect the antenna and antenna connector to see if there's any distortion
YES
Replace the defective components.
NO
Put a false antenna at RF PA IC to see if there's any signal
YES
Replace RF PA IC.
NO
Make a false antenna at SAW501 or SAW502, check if there's any
YES
Saw filter is damaged, replace it.
NO
Replace X801/26M oscillator to check if the problem is solved.
OK
Resolder or replace CPU MT6260
END

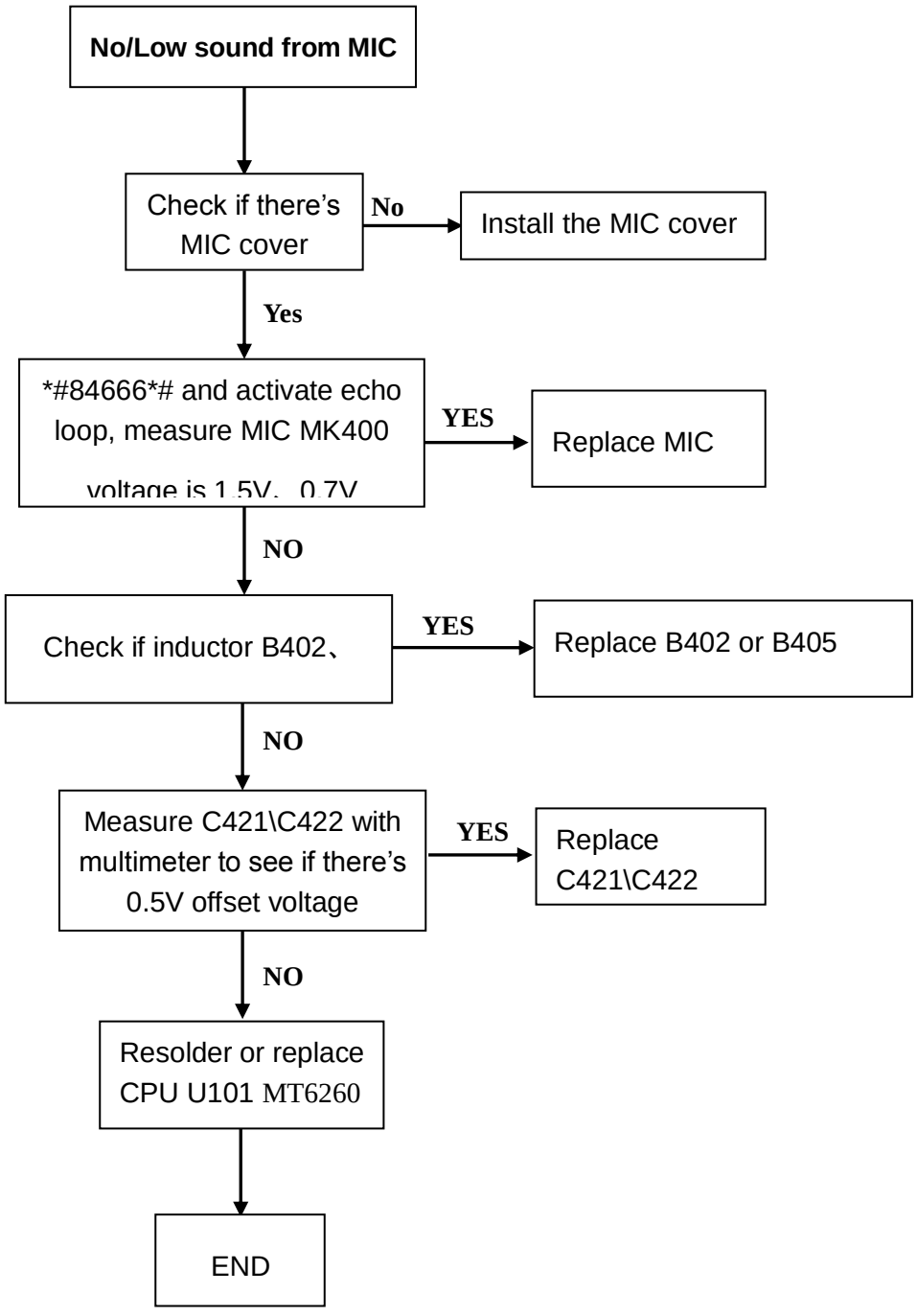
No/Low sound from Speaker


No sound or noise
Press power on and side button to check if there's the ring is normal
NO
Remove the speaker and measure with multimeter to see if there's any sound.
YES
YES
NO
Set the phone as normal mode
YES
The phone is in Silent mode.
Replace speaker.
NO
Check if the volume is in lowest mode.
YES
Turn up the volume.
NO
Turn on the speaker, measure the wave signal by oscillograph
NO
Replace U101 MT6260

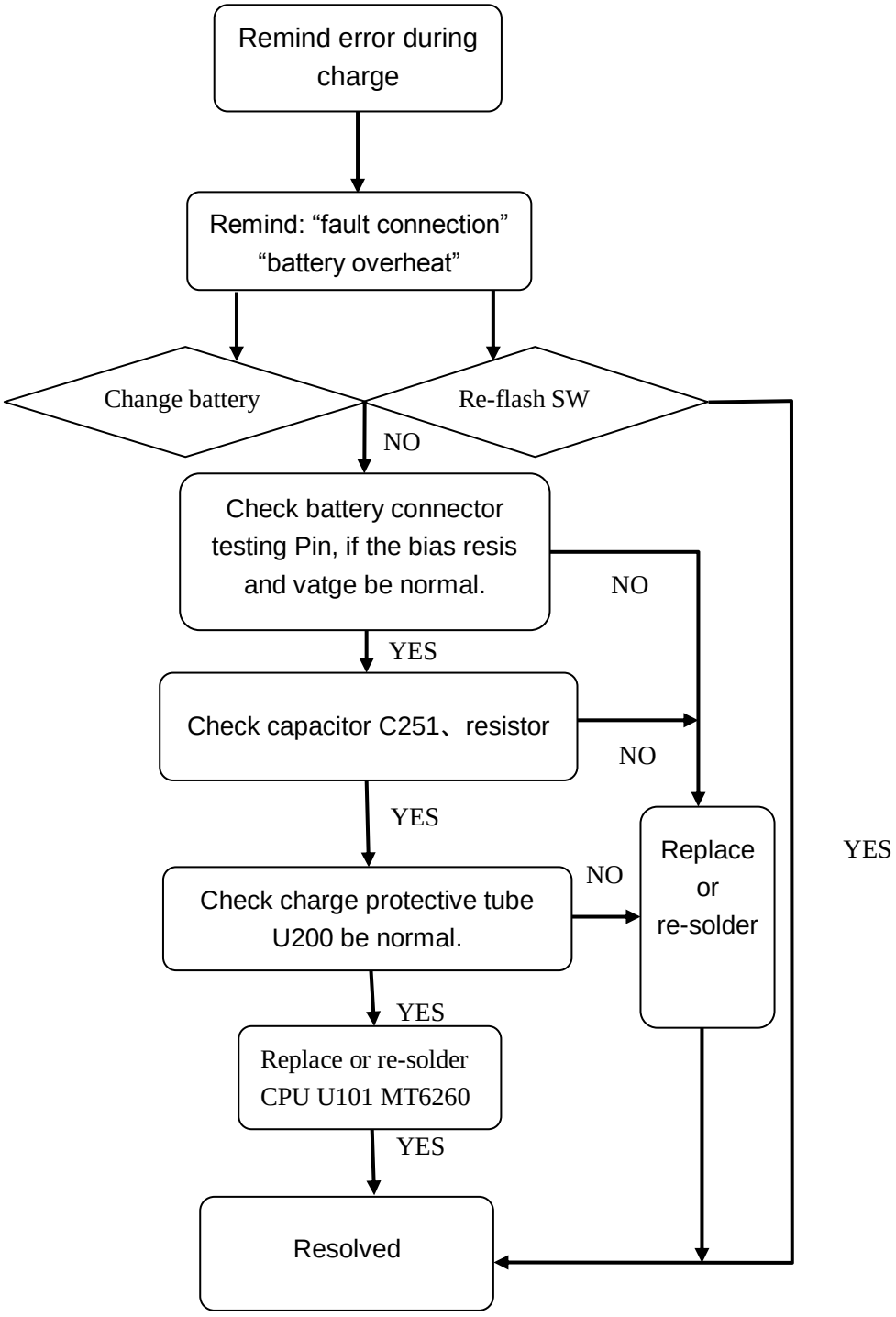
Receiver low voice or no voice



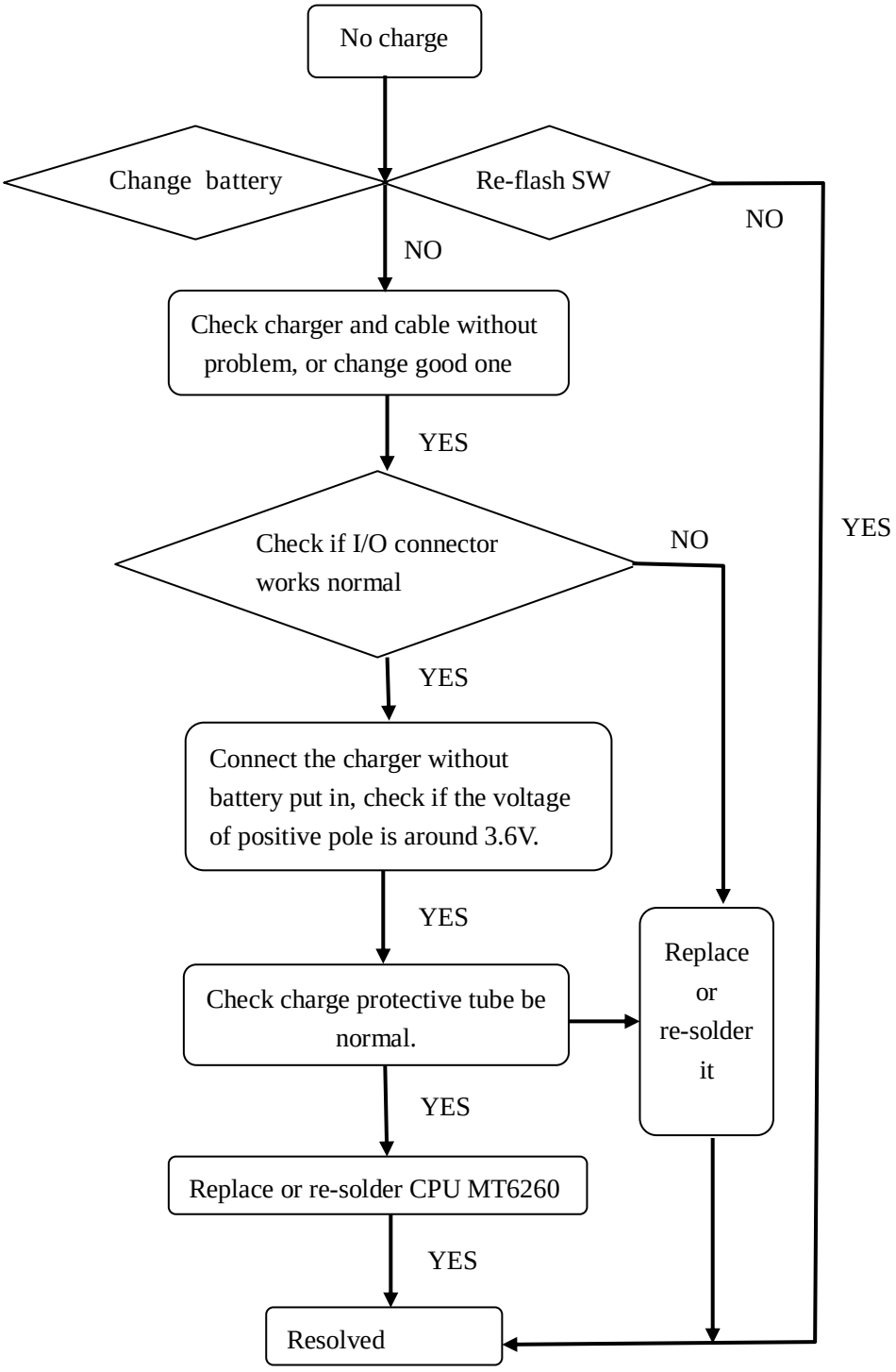
No/Low sound from MIC



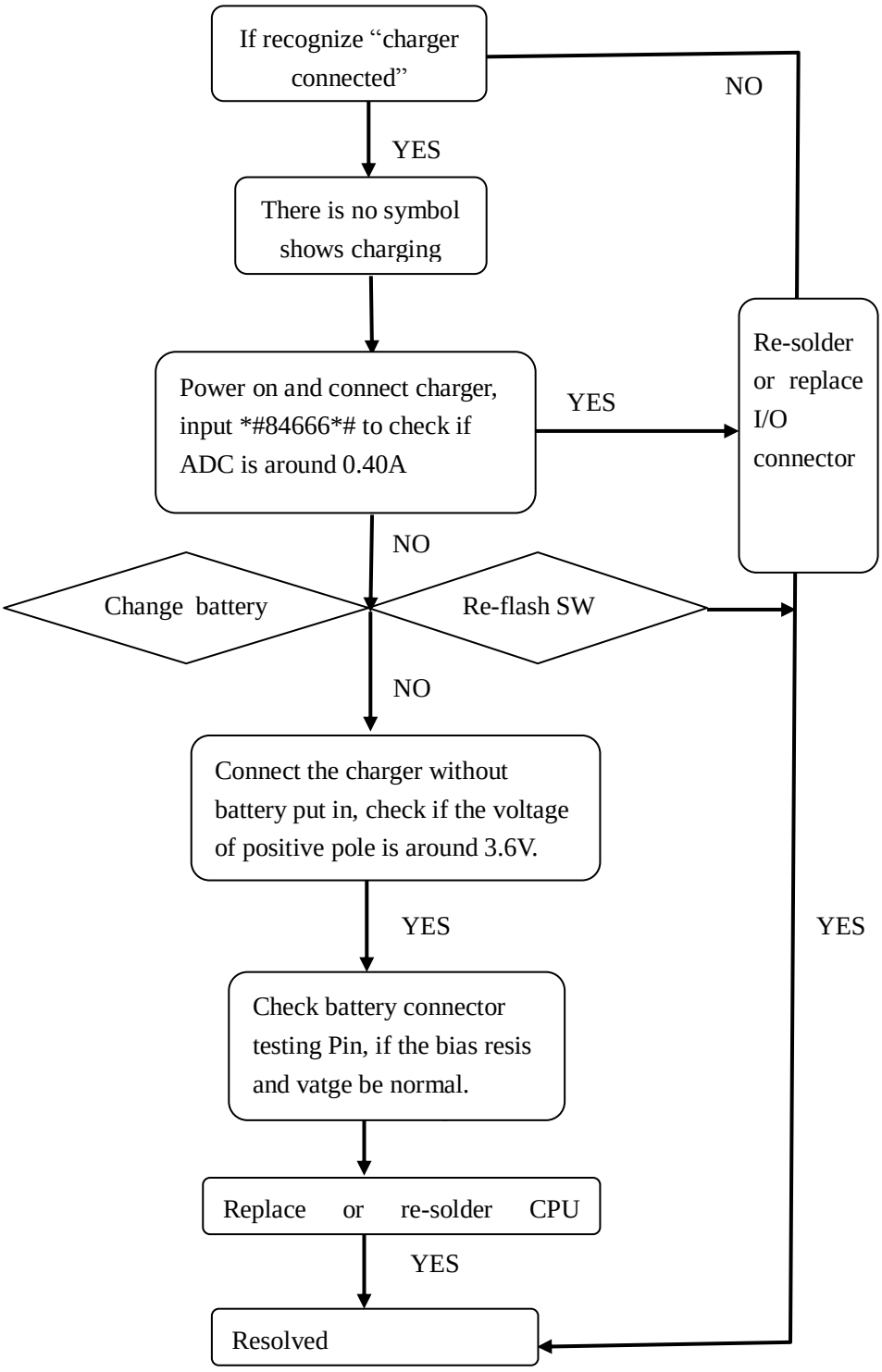
Does not charge – remind error charge



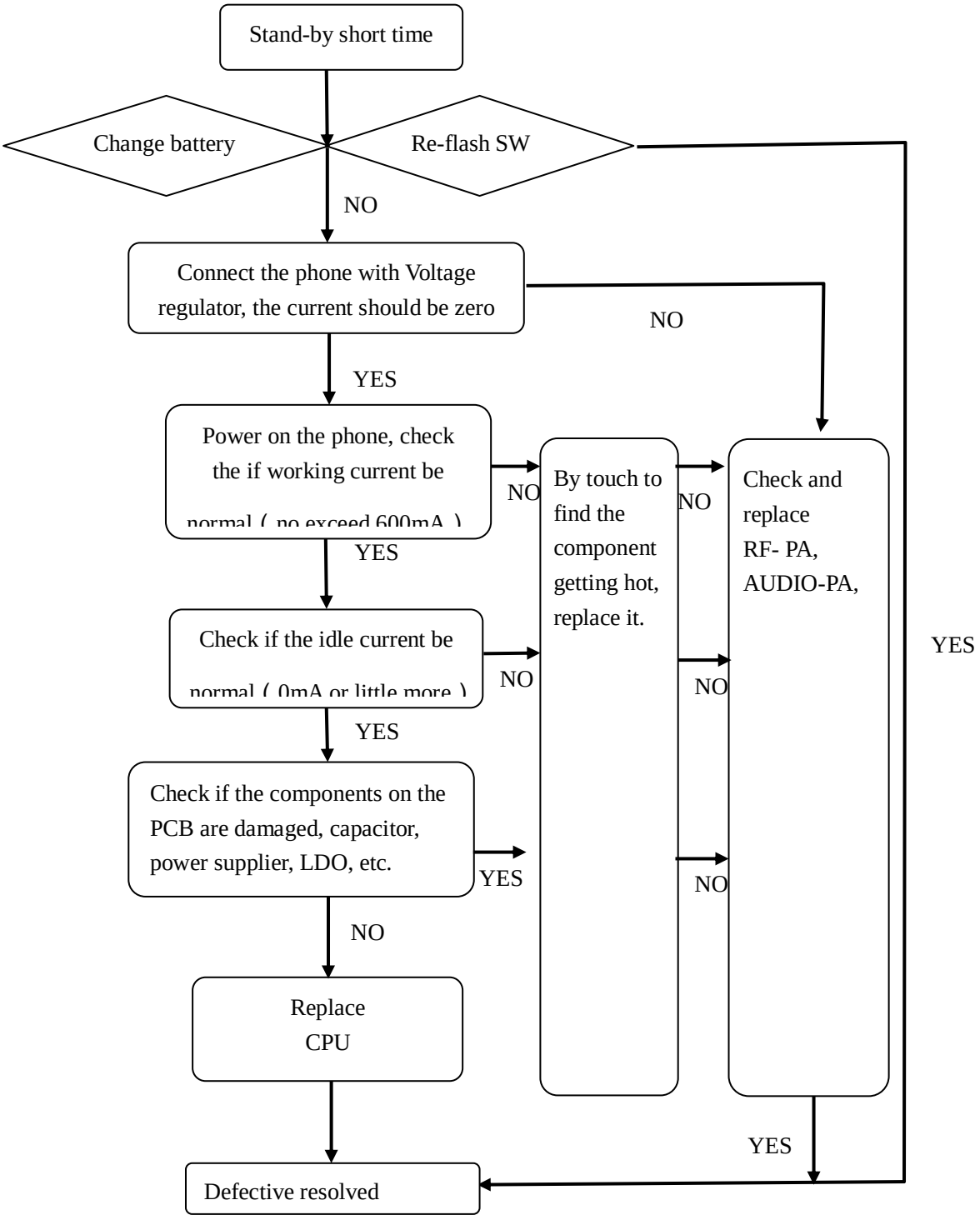
Does not charge – no charge



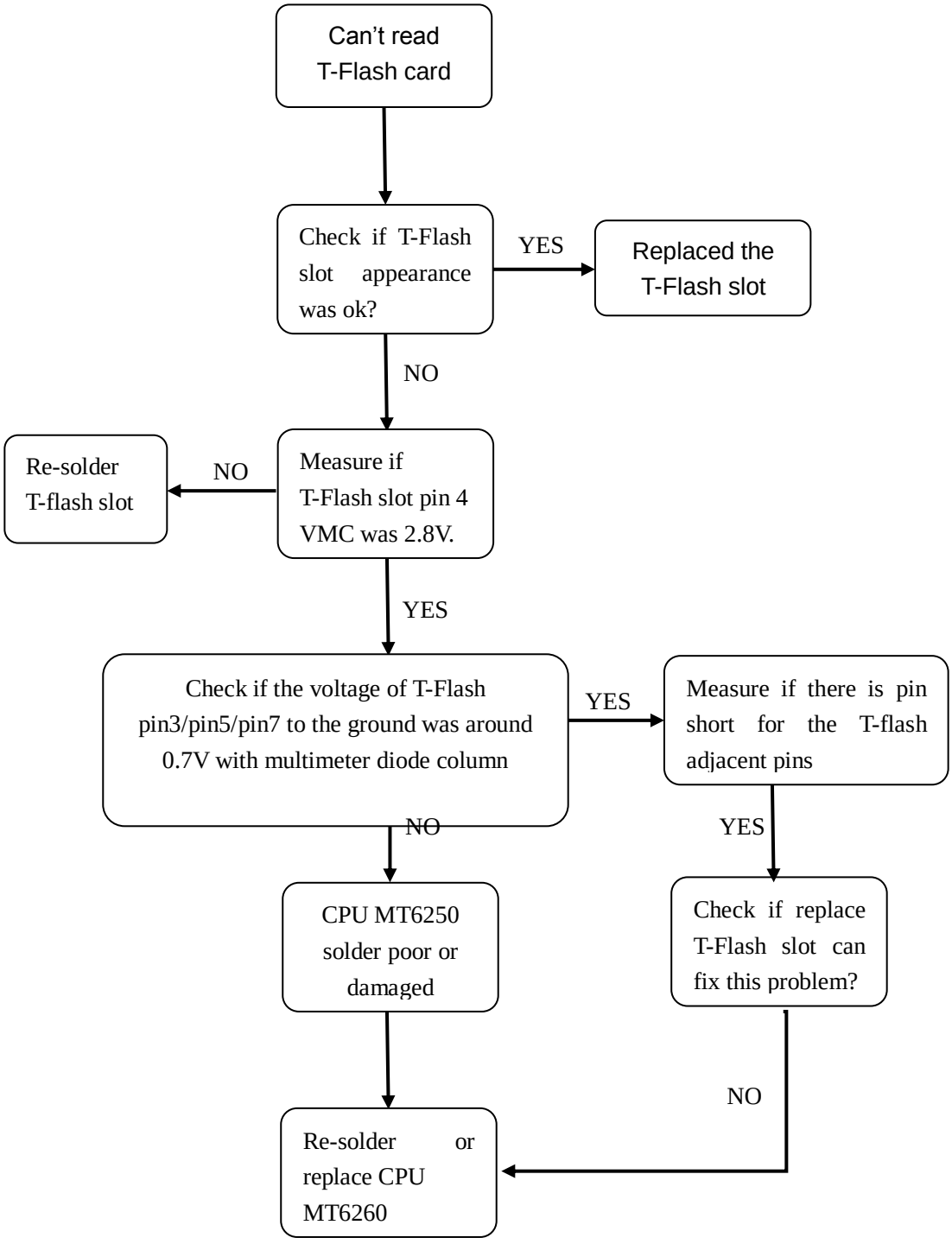
Does not charge – does not recognize charging


If recognize “charger connected”
NO
YES
There is no symbol shows charging
Power on and connect charger, input *#84666*# to check if ADC is around 0.40A
YES
Re-solder or replace I/O connector
NO
Change battery
Re-flash SW
NO
Connect the charger without battery put in, check if the voltage of positive pole is around 3.6V.
YES
YES
Check battery connector testing Pin, if the bias resis and vatge be normal.
Replace or re-solder CPU
YES
Resolved

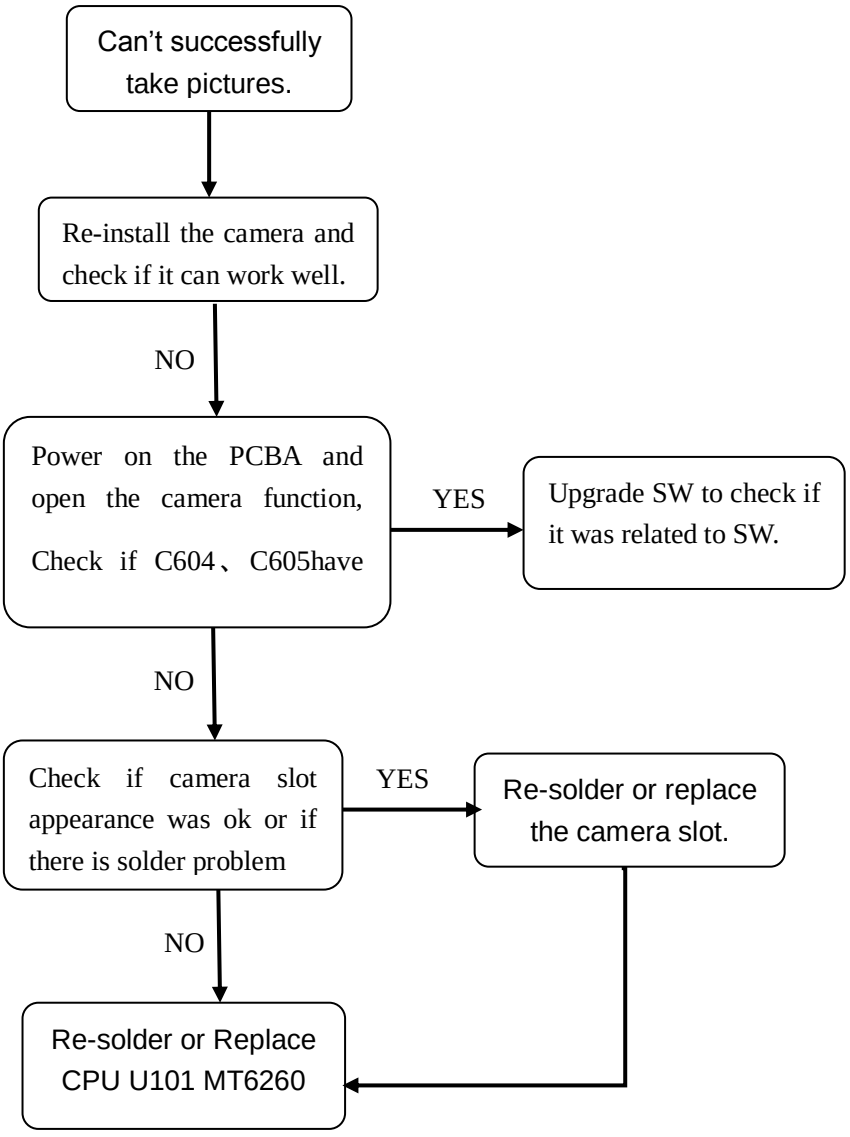
Stand-by short time



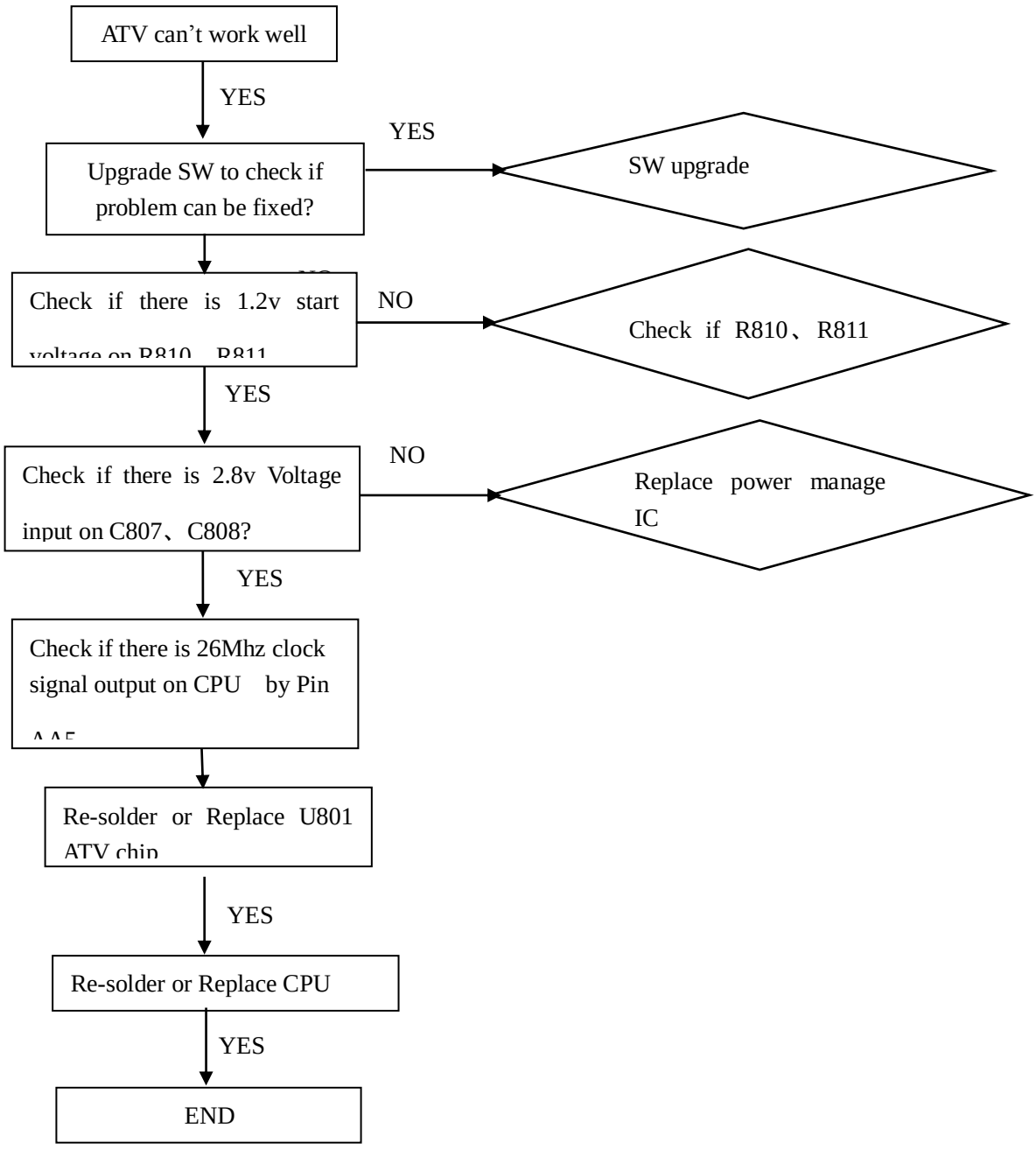
Can’t read T-Flash card


Can’t read T-Flash card
Check if T-Flash slot appearance was ok?
YES
Replaced the T-Flash slot
NO
Measure if T-Flash slot pin 4 VMC was 2.8V.
NO
Re-solder T-flash slot
YES
Check if the voltage of T-Flash pin3/pin5/pin7 to the ground was around 0.7V with multimeter diode column
YES
Measure if there is pin short for the T-flash adjacent pins
NO
YES
CPU MT6250 solder poor or damaged
Check if replace T-Flash slot can fix this problem?
NO
Re-solder or replace CPU MT6260

Can’t successfully take picture


Can’t successfully take pictures.
Re-install the camera and check if it can work well.
NO
Power on the PCBA and open the camera function, Check if C604、C605have
YES
Upgrade SW to check if it was related to SW.
NO
Check if camera slot appearance was ok or if there is solder problem
YES
Re-solder or replace the camera slot.
NO
Re-solder or Replace CPU U101 MT6260

ATV can’t work well



Chapter 9 Firmware Upgrading Guide

9.1 Firmware Upgrading

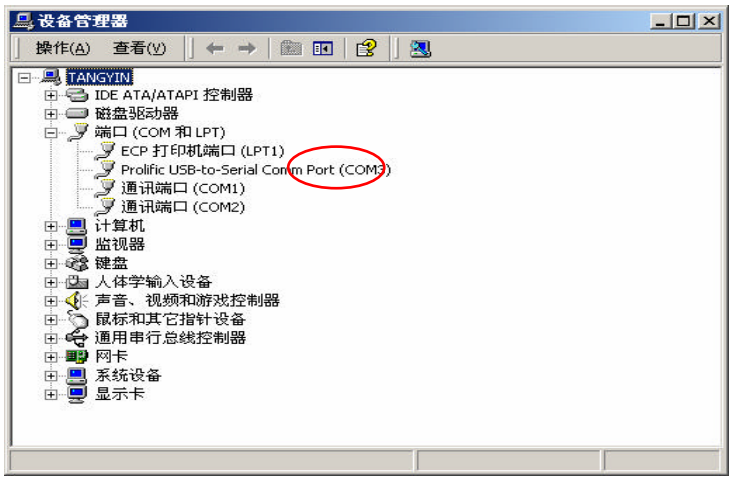
9.1.1 Install USB driver

The maximum downloading speed can be up to 921600bit/s when using USB-Serial cable.

The driver need to be installed before using the USB cable.

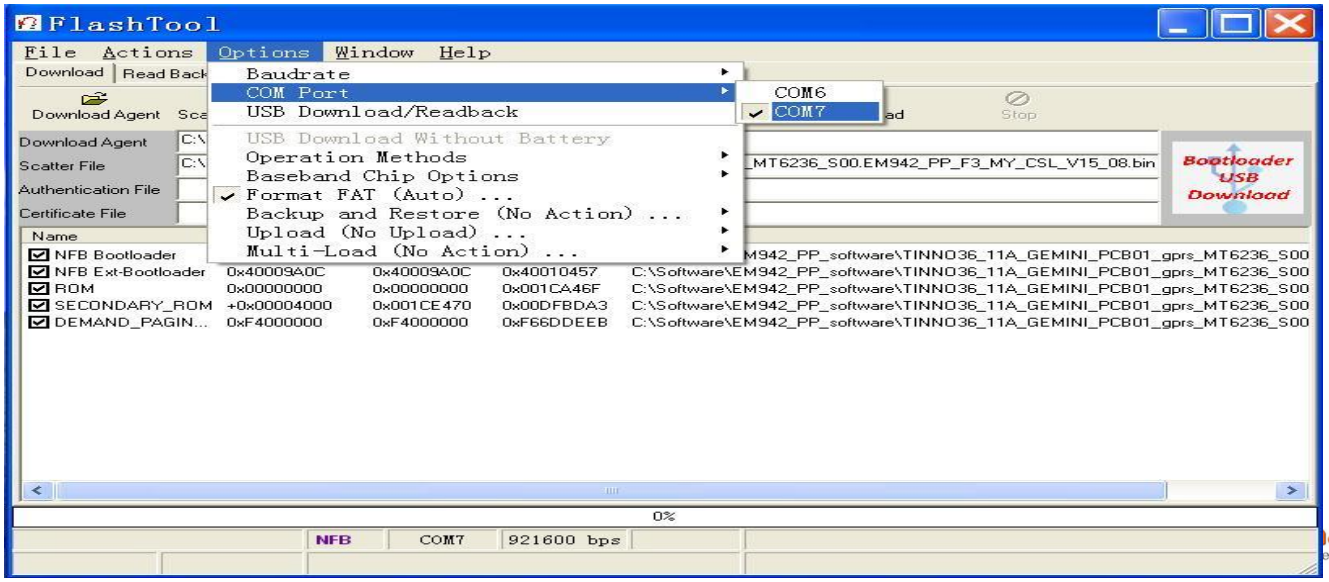
Please keep the USB cable unplugged when installing the driver.

Plug the USB cable when installing is completed. And check device manager of the PC.

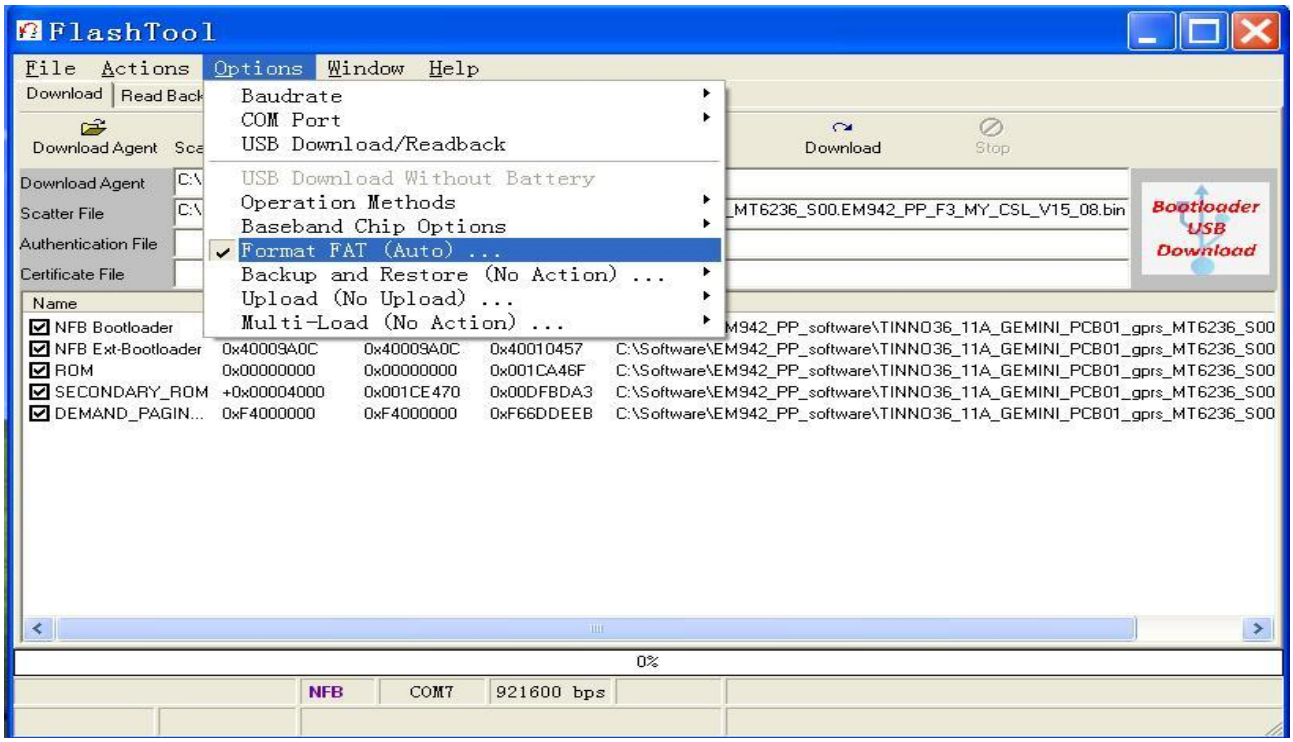


9.1.2 Run the “Flash_tool.exe” of FlashTool_v5.1112.00

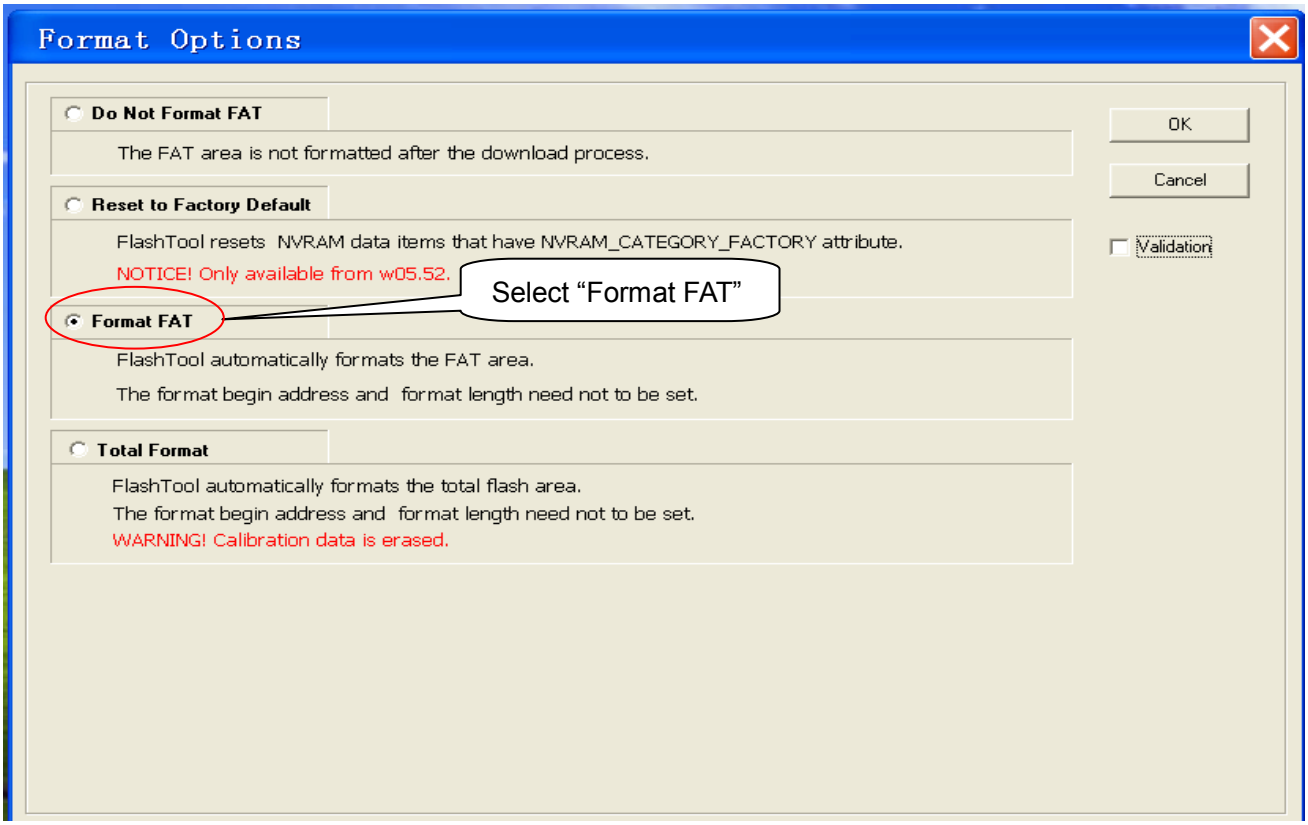
9.1.3 Please select “Options”-“COM port”-Choose the port which is same as the one in “Device Manager”.



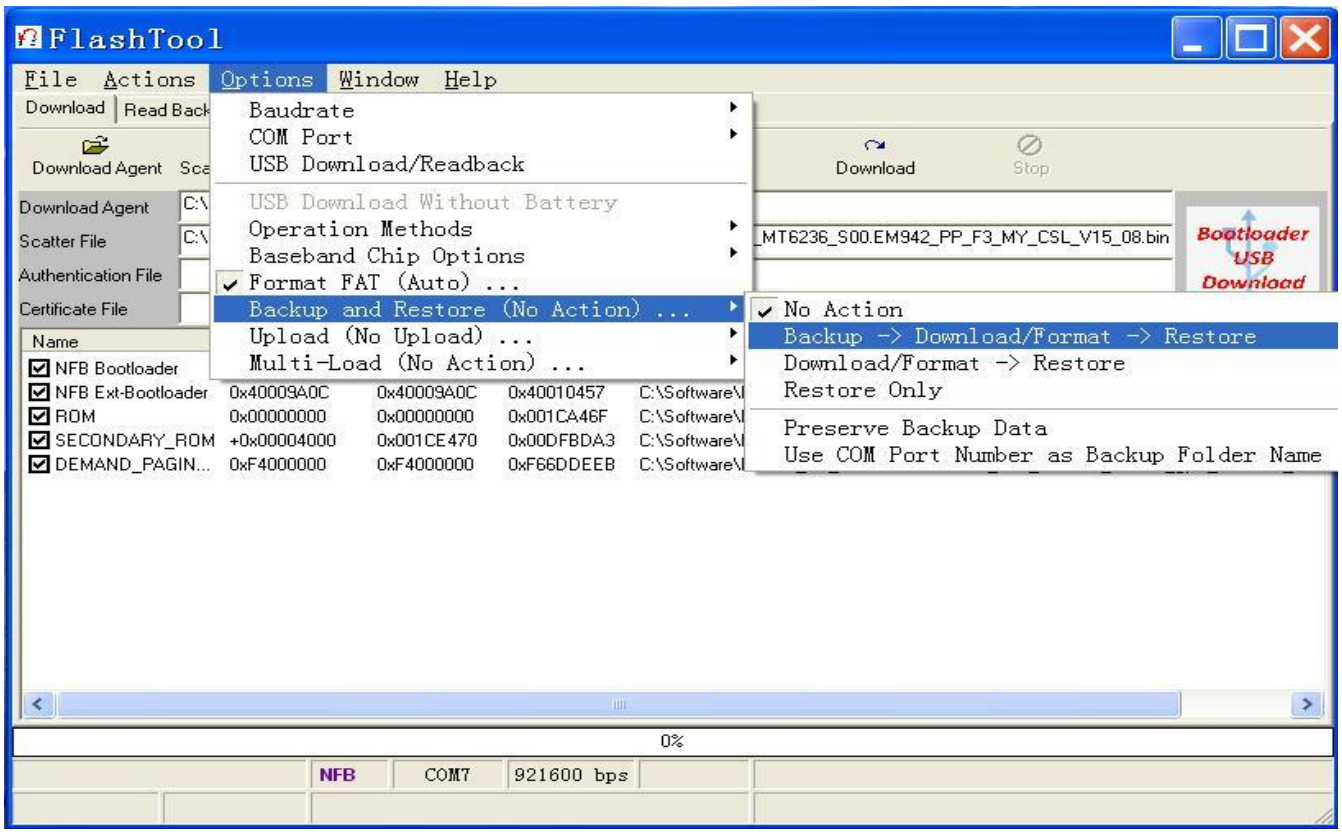
9.1.4 Select “Options”-“Format FAT (DISABLED)…” and please do NOT select “validation”.



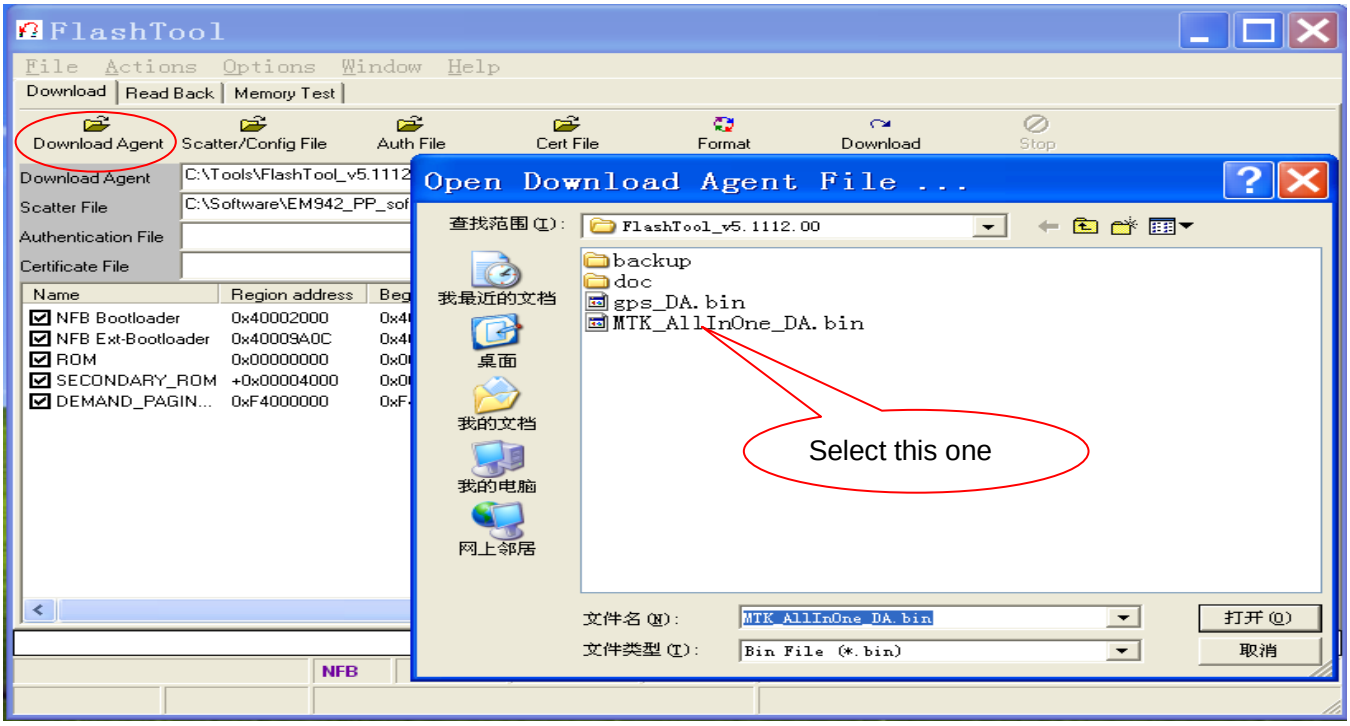
9.1.5 Please select “Format FAT”.


Format Options
Do Not Format FAT
The FAT area is not formatted after the download process.
Reset to Factory Default
FlashTool resets NVRAM data items that have NVRAM_CATEGORY_FACTORY attribute.
NOTICE! Only available from w05.52.
Format FAT
FlashTool automatically formats the FAT area.
The format begin address and format length need not to be set.
Total Format
FlashTool automatically formats the total flash area.
The format begin address and format length need not to be set.
WARNING! Calibration data is erased.
OK
Cancel
Validation
Select “Format FAT”

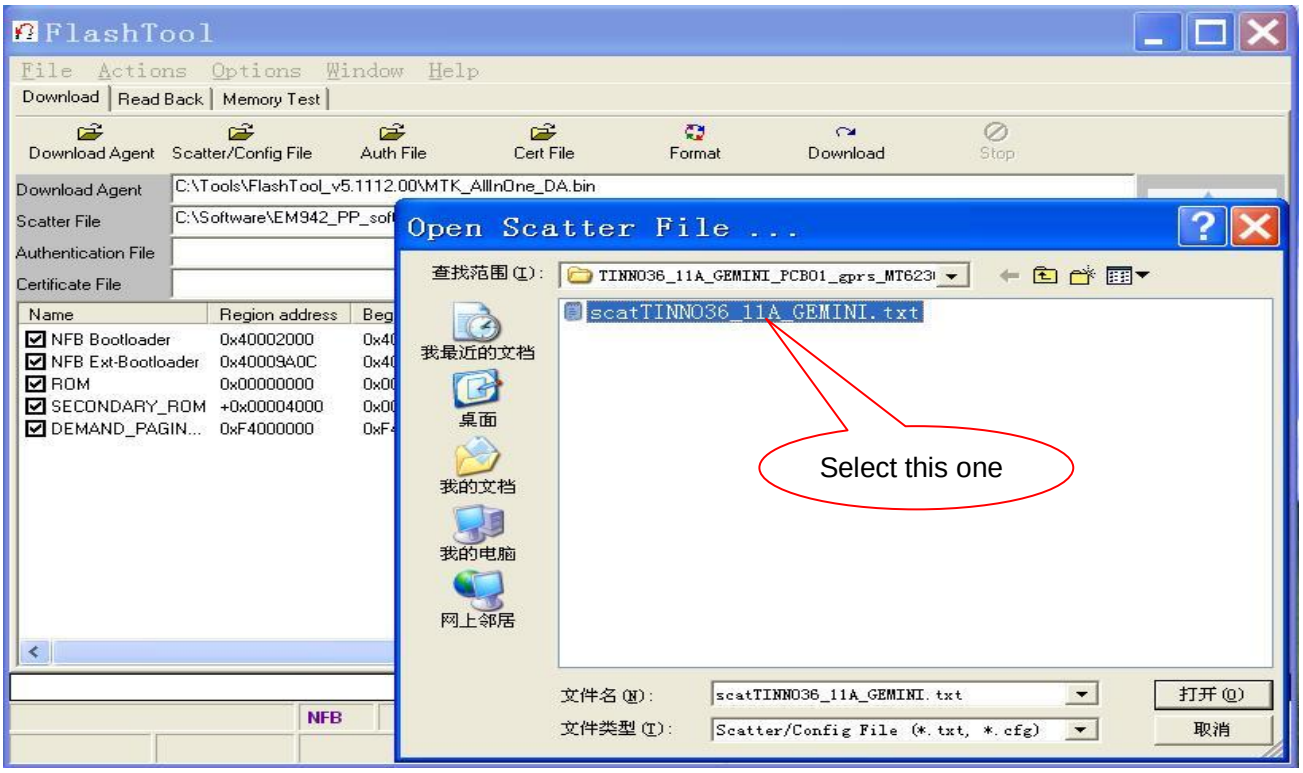
9.1.6 Select “Options”- “Backup and Restore”, then select the “Backup -> Download/format -> Restore”.



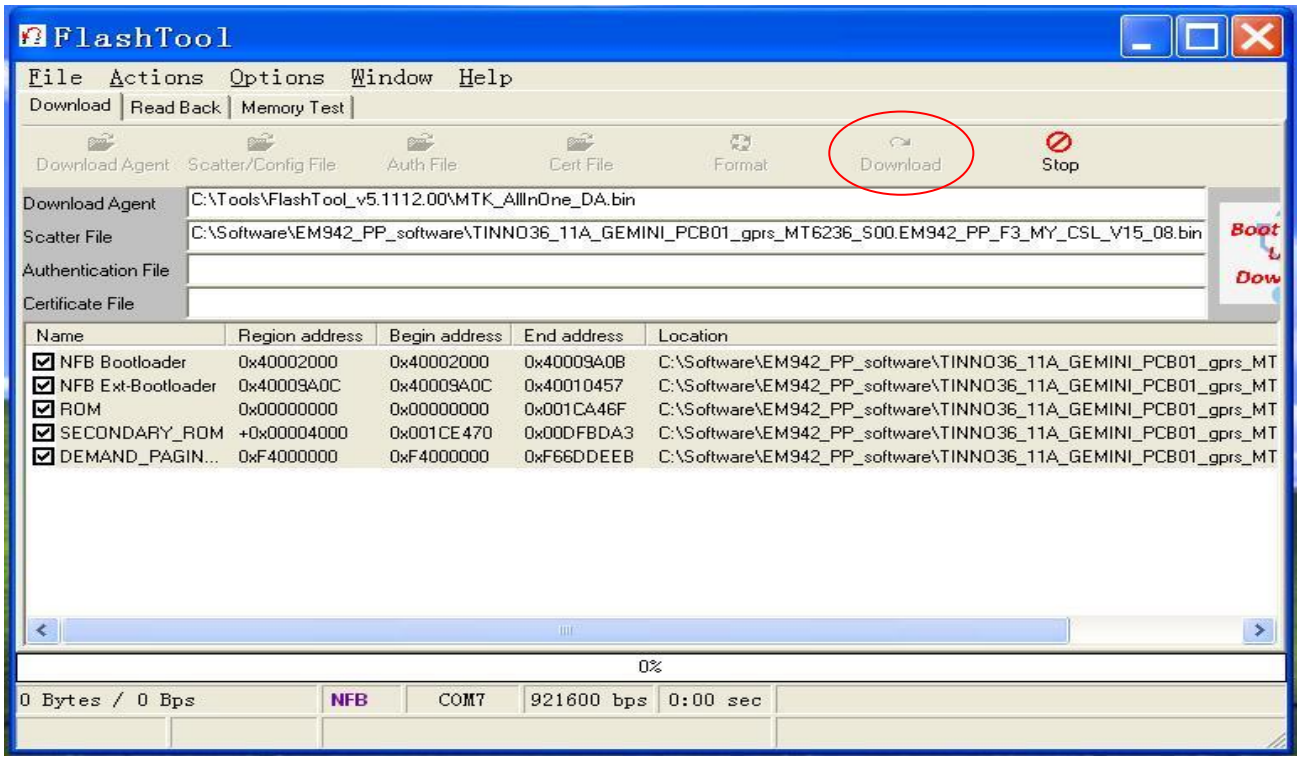
9.1.7 Click the ”Download Agent” and select the file “MTK-ALLInOne-DA.bin”.



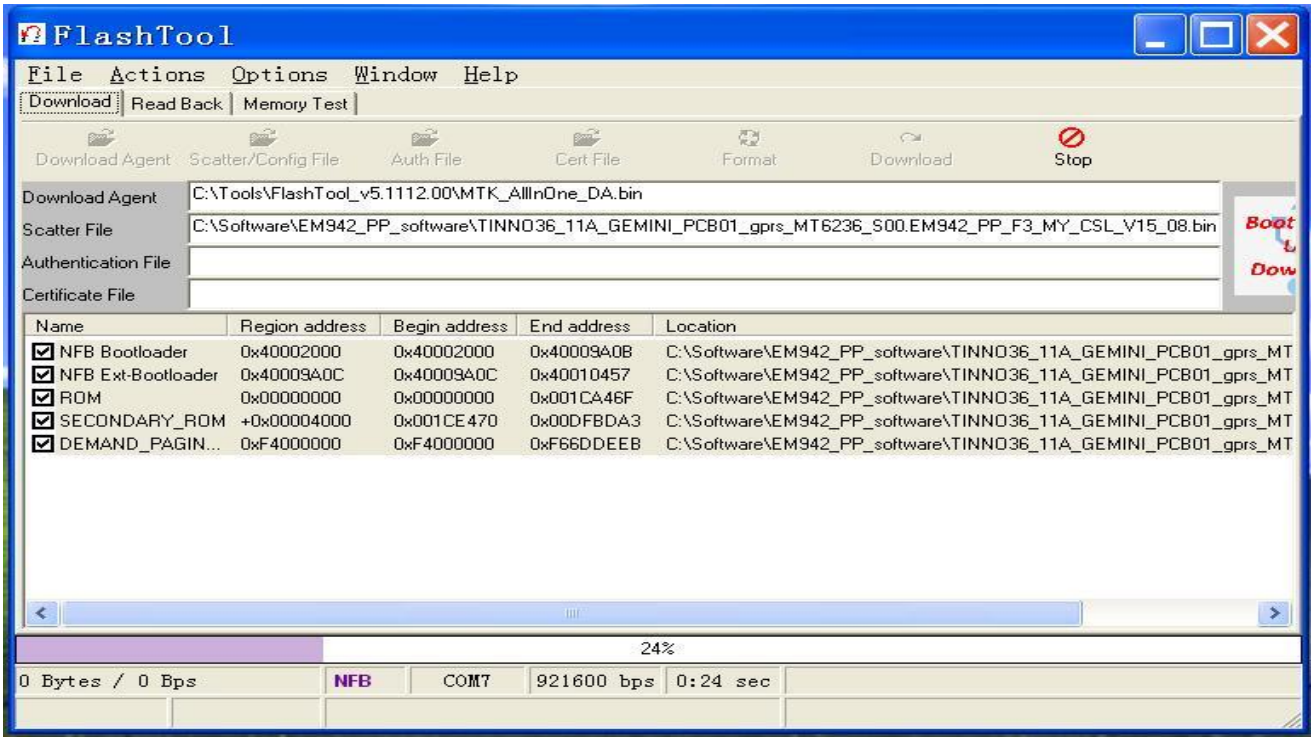
9.1.8 Click the “Scatter/config file” and select the “scatTINNO36_11A_GEMINI.txt”.



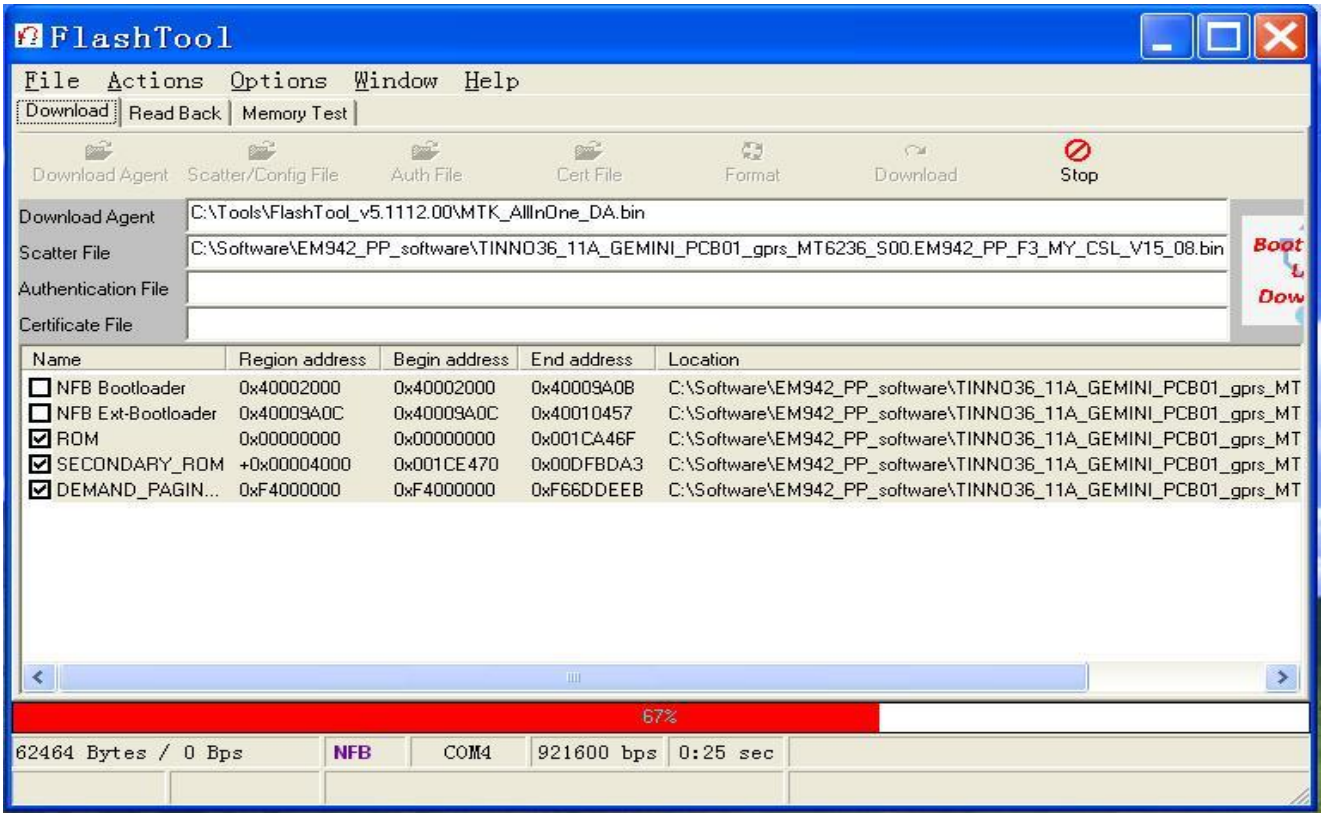
9.1.9 Power off the handset, remove the battery, click “Download”, and connect the cable with handset, then insert the battery, press the power on button, the gray, red, blue, green and gray progress bar shall appear. Then upgrade would be completed when appear “OK”.



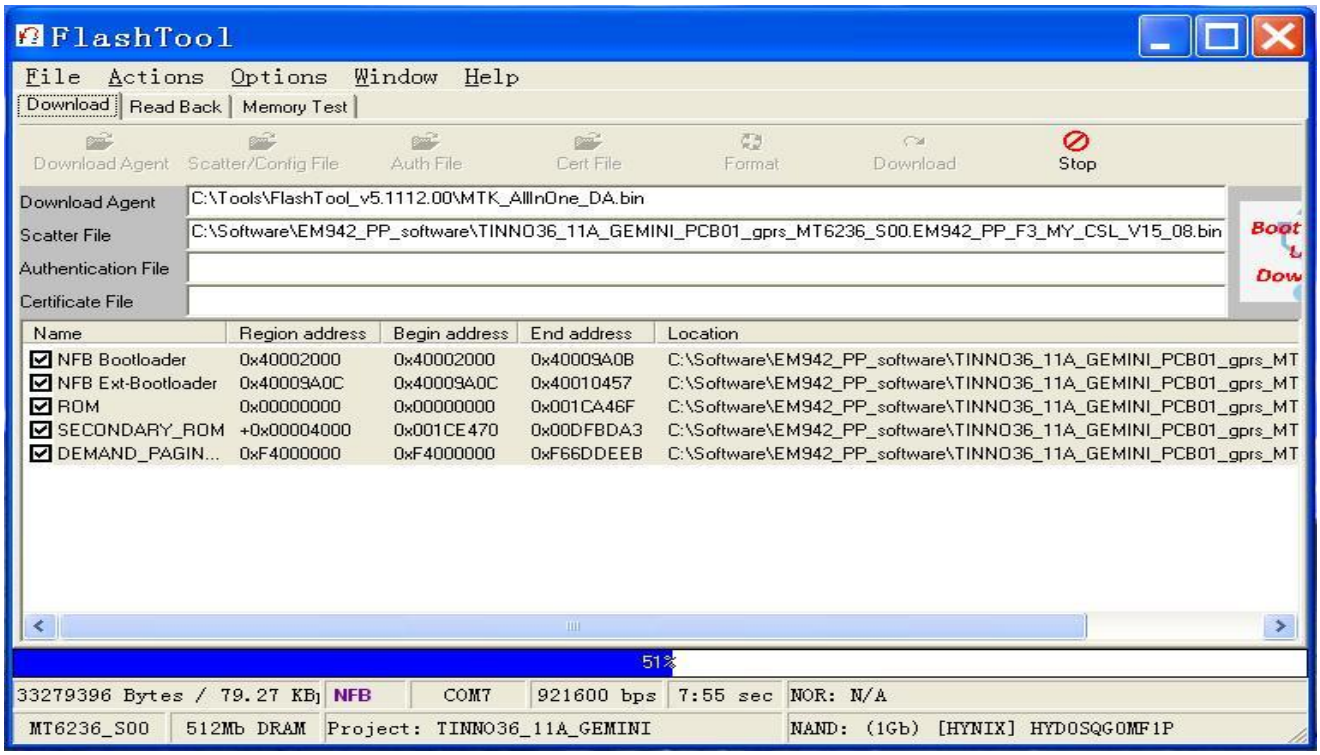
9.1.10 Backup the data. (gray progress bar)


FlashTool
File Actions Options Window Help
Download Read Back Memory Test
Download Agent Scatter/Config File Auth File Cert File Format Download Stop
Download Agent C:\Tools\FlashTool_v5.1112.00\MTK_AllInOne_DA.bin
Scatter File C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT6236_S00.EM942_PP_F3_MY_CSL_V15_08.bin
Authentication File
Certificate File
Name Region address Begin address End address Location
NFB Bootloader 0x40002000 0x40002000 0x40009A0B C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
NFB Ext-Bootloader 0x40009A0C 0x40009A0C 0x40010457 C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
ROM 0x00000000 0x00000000 0x001CA46F C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
SECONDARY_ROM +0x00004000 0x001CE470 0x00DFBDA3 C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
DEMAND_PAGIN... 0xF4000000 0xF4000000 0xF66DDEEB C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
24%
0 Bytes / 0 Bps NFB COM7 921600 bps 0:24 sec

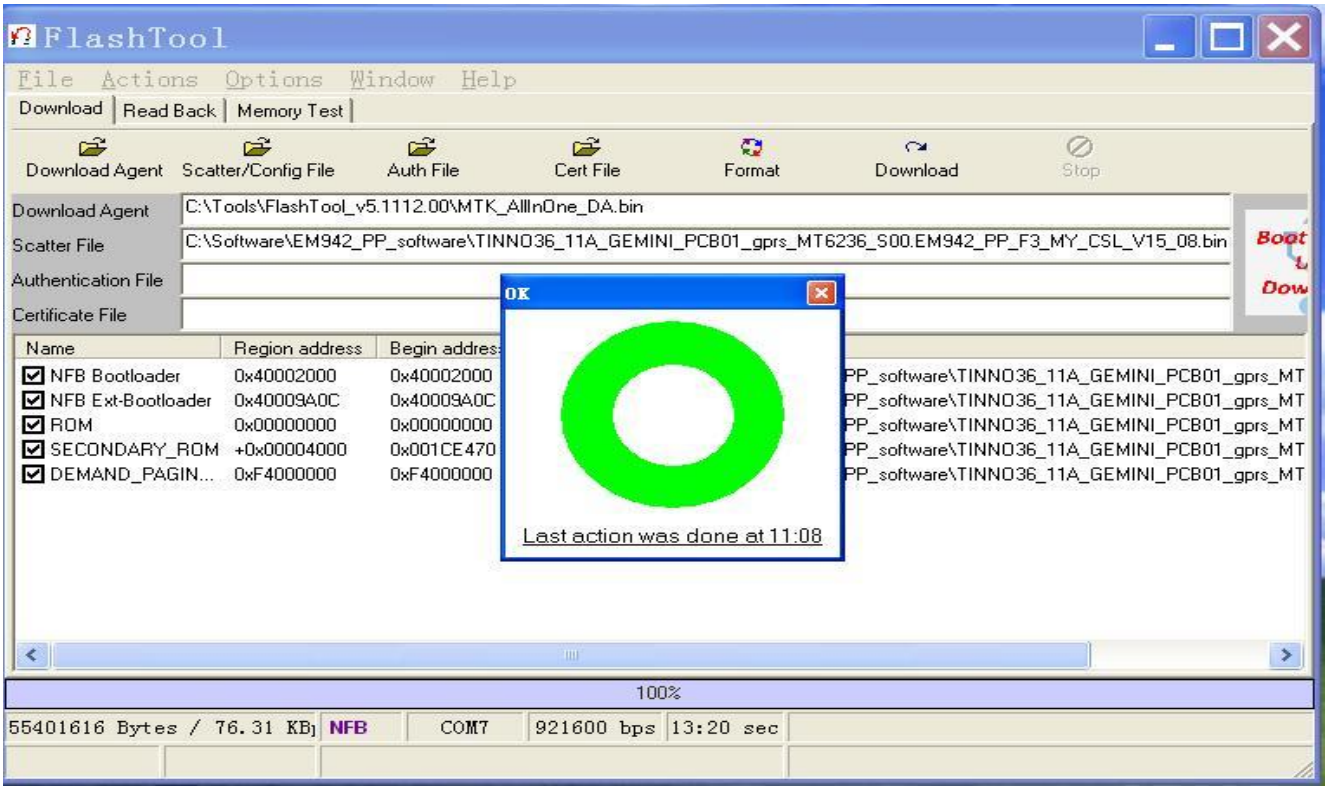
9.1.11 Connect to phone. (red progress bar)


FlashTool
File Actions Options Window Help
Download Read Back Memory Test
Download Agent Scatter/Config File Auth File Cert File Format Download Stop
Download Agent C:\Tools\FlashTool_v5.1112.00\MTK_AllInOne_DA.bin
Scatter File C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT6236_S00.EM942_PP_F3_MY_CSL_V15_08.bin
Authentication File
Certificate File
Name Region address Begin address End address Location
NFB Bootloader 0x40002000 0x40002000 0x40009A0B C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
NFB Ext-Bootloader 0x40009A0C 0x40009A0C 0x40010457 C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
ROM 0x00000000 0x00000000 0x001CA46F C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
SECONDARY_ROM +0x00004000 0x001CE470 0x00DFBDA3 C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
DEMAND_PAGIN... 0xF4000000 0xF4000000 0xF66DDEEB C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
67%
62464 Bytes / 0 Bps NFB COM4 921600 bps 0:25 sec

9.1.12 Downloading is in process. (blue progress bar)


FlashTool
File Actions Options Window Help
Download Read Back Memory Test
Download Agent Scatter/Config File Auth File Cert File Format Download Stop
Download Agent C:\Tools\FlashTool_v5.1112.00\MTK_AllInOne_DA.bin
Scatter File C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT6236_S00.EM942_PP_F3_MY_CSL_V15_08.bin
Authentication File
Certificate File
Name Region address Begin address End address Location
NFB Bootloader 0x40002000 0x40002000 0x40009A0B C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
NFB Ext-Bootloader 0x40009A0C 0x40009A0C 0x40010457 C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
ROM 0x00000000 0x00000000 0x001CA46F C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
SECONDARY_ROM +0x00004000 0x001CE470 0x00DFBDA3 C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
DEMAND_PAGIN... 0xF4000000 0xF4000000 0xF66DDEEB C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT
51%
33279396 Bytes / 79.27 KB/ NFB COM7 921600 bps 7:55 sec NOR: N/A
MT6236_S00 512Mb DRAM Project: TINNO36_11A_GEMINI NAND: (1Gb) [HYNIX] HYD0SQG0MF1P

9.1.13 Downloading is completed.


FlashTool
File Actions Options Window Help
Download Read Back Memory Test
Download Agent Scatter/Config File Auth File Cert File Format Download Stop
Download Agent C:\Tools\FlashTool_v5.1112.00\MTK_AllInOne_DA.bin
Scatter File C:\Software\EM942_PP_software\TINNO36_11A_GEMINI_PCB01_gprs_MT6236_S00.EM942_PP_F3_MY_CSL_V15_08.bin
Authentication File
Certificate File
OK
Last action was done at 11:08
100%
55401616 Bytes / 76.31 KB/ NFB COM7 921600 bps 13:20 sec

9.1.14 Power on phone and input "*#84666*#", select "one key Restore", phone will be reboot, then the user's setting could be eliminated entirely.

Description: can't power on(also upgrade software fail)

Root cause: red scroll 100% run completely when upgrade software, the detail as figure 1, also it prove power supply, clock is normal and defective typical issue is focus on CPU or FLASH poor soldering or damage, and maybe software do not fit for hardware.

Corrective action: check software fit for hardware whether or not, resolding CPU and FLASH or exchange new CPU and FLASH.

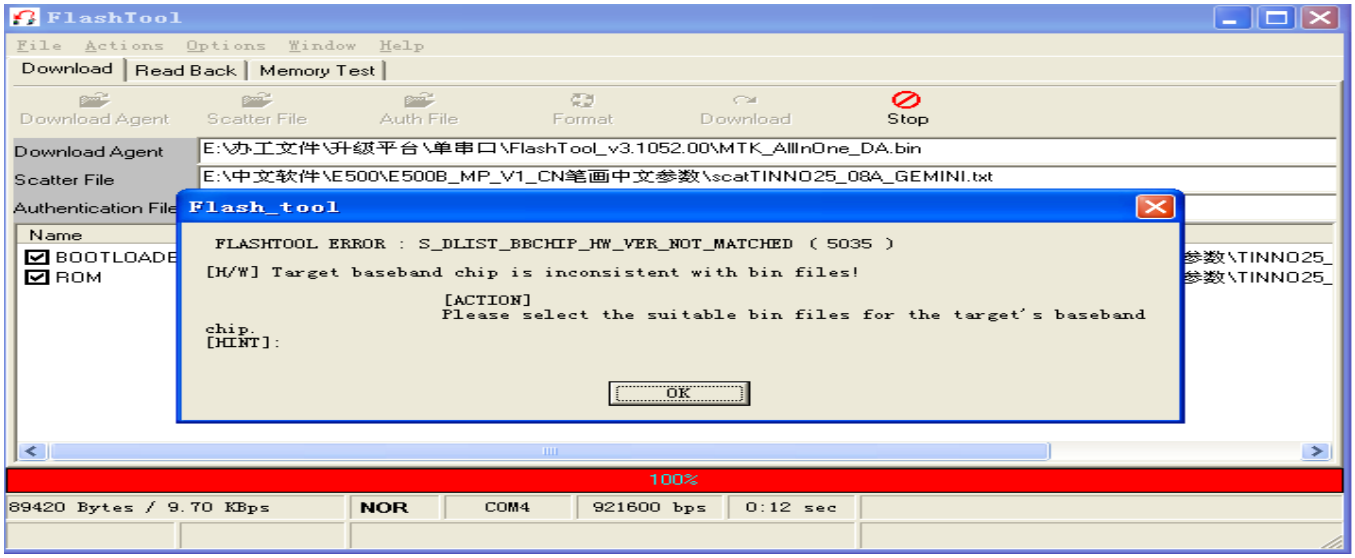


图 1(figure 1)

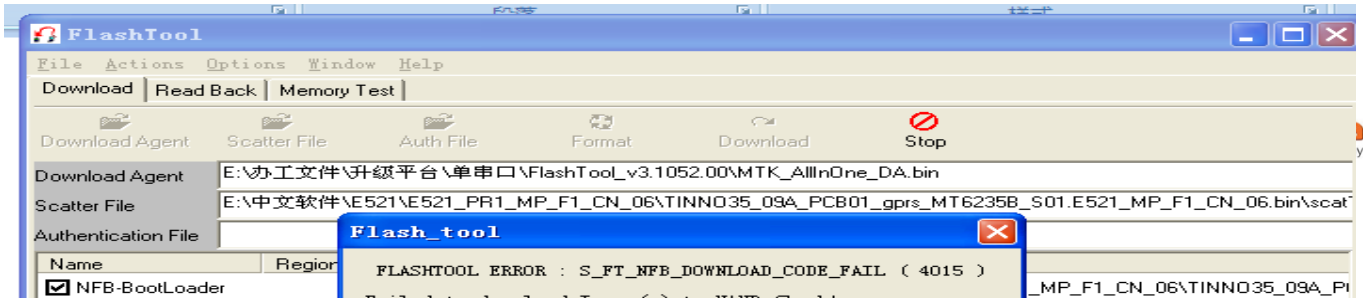
Description: E930 can't power on (handset is dead when upgrade software.)details as figure 2.

Root cause: the power supply and clock both work on as common during upgrade software.

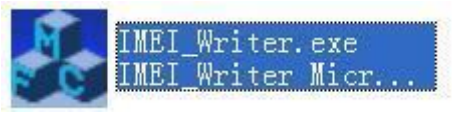
The typical defective issue as poor soldering or go to fall, other way as exchange

CPU or Flash.

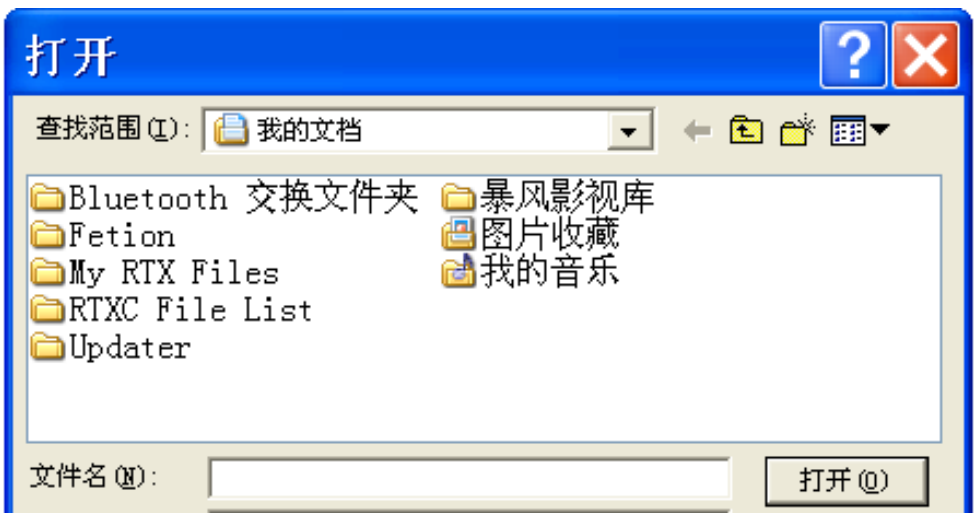
Corrective action: re-solder CPU and Flash, or replace them.



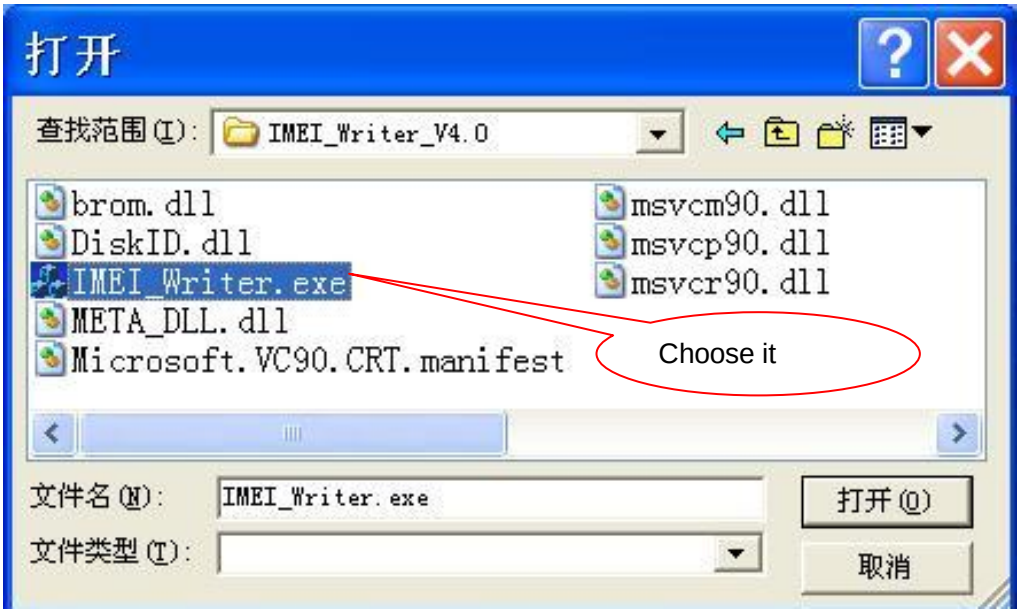
9.2 IMEI Writing Guide

9.2.1 Plug the correct upgrade cable to the computer, then run 

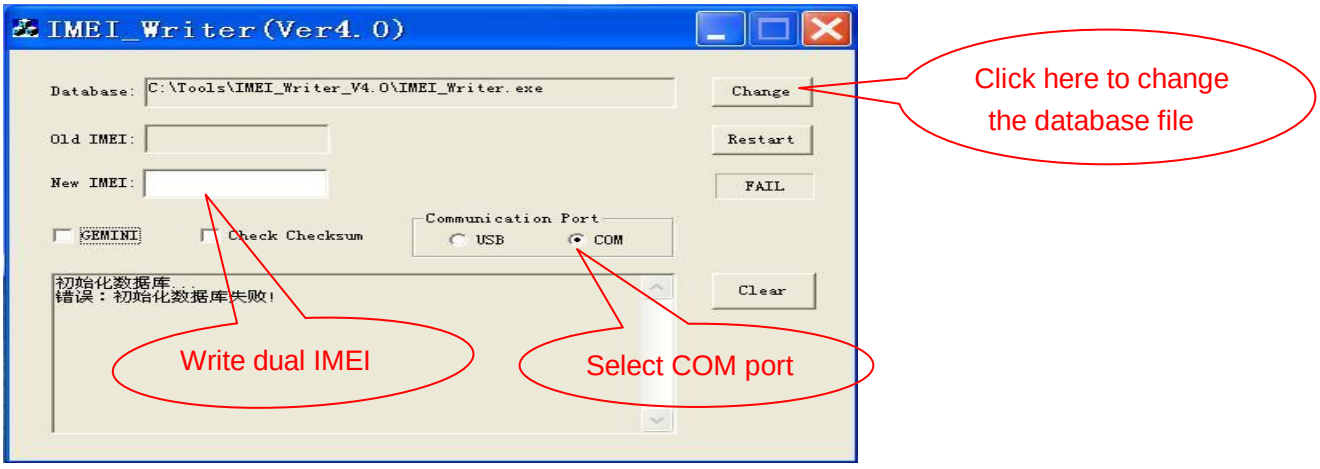
IMEI writer.
For the first time you run IMEI Writer in the computer, below figure would be occur, then choose “IMEI_Writer.exe”.



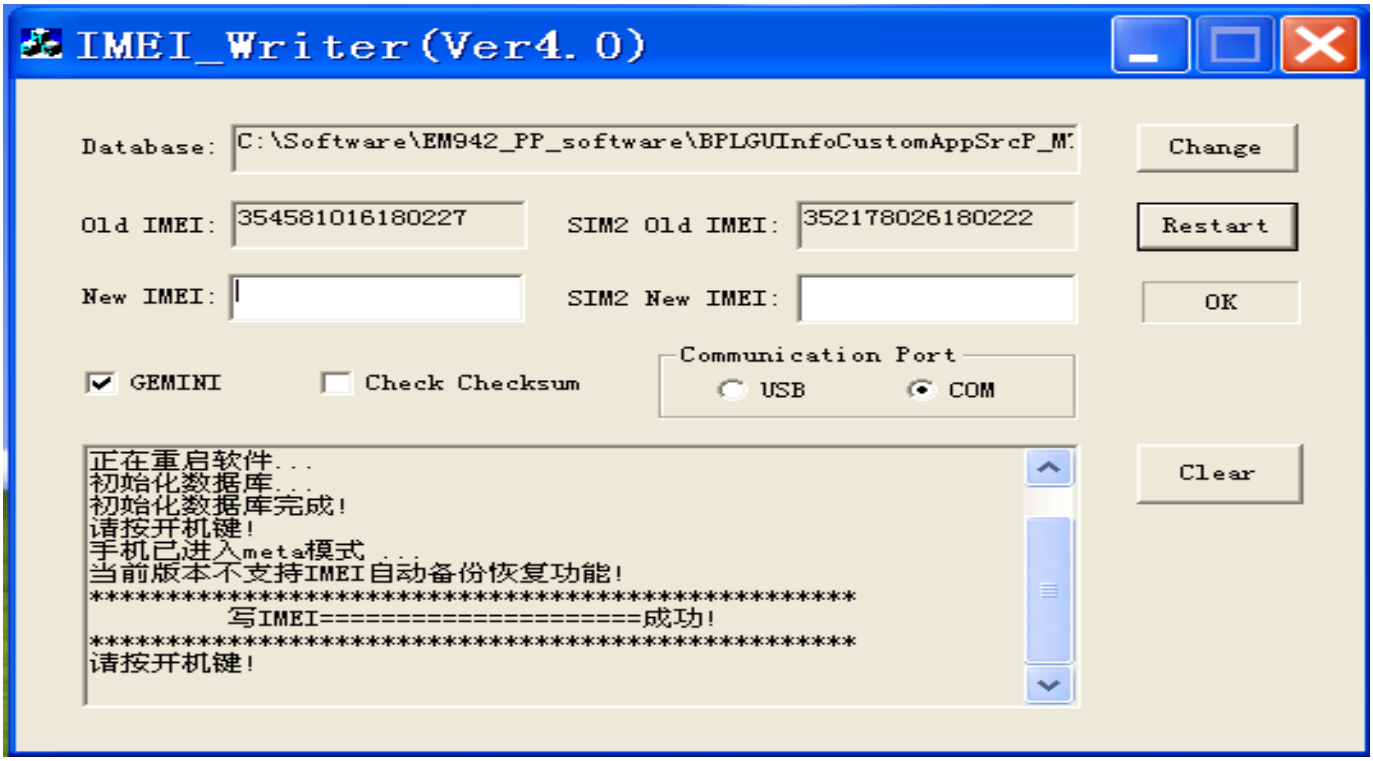
Choose the “IMEI_Writer.exe”.



9.2.2 Refer to below figure to set up IMEI writer, power off the phone and then click “Restart”, after 3 seconds plug the phone cable connector to the phone and power on the phone, it starts to write IMEI.



9.2.3 After several seconds, it shows the IMEI is written to the phone successfully.



Chapter 10 CIT Testing

Input “*#84666*#” in the standby mode.

1. Version: Confirm the firmware version.

2. Echo Loop: Receiver shall produce sound when blowing over the mic.

3. Keypad: Press every button on the handset until the screen is clear.

4. Vibrator：Press “start” then the vibration shall start.

5. Lond SPK: Press “start” the speaker shall work.

6. Ringtone: Press “start” the ringtone shall be played.

7. LED：Press “OK” to test the LED.

8. LCD: Select “Auto Display” LCD shall perform the self-testing.

9. Receiver：Press ”start” the receiver shall produce sound.

10. Camera: Menu- Camera, test the capture and shooting, no need to save.